Proceedings of the American Academy of Arts and Sciences.

Vol. XLIX. No. 8. — October, 1913.

ISSUED

SEP 30 1913

CONTRIBUTIONS FROM THE GRAY HERBARIUM OF HARVARD UNIVERSITY.

New Series. — No. XLII.

I. A Key to the Genera of the *Compositae-Eupatorieae*. By B. L. Robinson.

II. Revisions of *Alomia*, *Ageratum*, and *Oxylobus*. By B. L. Robinson.

III. Some new Combinations required by the International Rules. By C. A. Weatherby.

IV. On the *Gramineae* collected by Prof. Morton E. Peck in British Honduras, 1905–1907. By F. Tracy Hubbard.

V. Diagnoses and Transfers among the Spermatophytes. By B. L. Robinson.

CONTRIBUTIONS FROM THE GRAY HERBARIUM OF HARVARD UNIVERSITY.—NEW SERIES, No. XLII.

Presented by B. L. Robinson, May 14, 1913. Received June 24, 1913.

I. A GENERIC KEY TO THE COMPOSITAE-EUPATORIEAE.

By B. L. Robinson.

It is now more than twenty years since the genera of the *Eupatorium* tribe were keyed by Hoffmann in Engl. & Prantl, Nat. Pflanzenf. iv. Ab. 5 (1890). During this interval several genera have been added to the tribe, some few have been definitely removed from it to other tribes of the *Compositae*, two (*Brachyandra* and *Addisonia*) have been reduced, and certain sections of genera have come to appear worthy of generic rank within the tribe. In consequence the key of Hoffmann, though excellent for its time, is now unsatisfactory and far from complete. The one here offered, though drawn up after some years' study of the group, is put forth rather as a convenient working hypothesis than a finished or monographic product.

In the *Eupatorium* tribe, as elsewhere in the *Compositae*, generic distinctions, though essential for classification, often seem pretty artificial and the more precisely they are stated the greater of necessity becomes the artificial or arbitrary element. A re-examination of the technical characters relied upon by the older authors discloses many exceptions and transitions. On the other hand persistent attempts to secure a more natural classification by relying in larger measure upon habital traits have proved even more disappointing. These, while fairly convincing among plants of a circumscribed area, quickly lose any statable definiteness in dealing with the species of the world. One is in consequence forced to a restatement of the distinctions of pappus, achenes, anther-tips, and involucral-bracts as yielding after all the most practical basis for classification in the group.

In order to employ these more technical features effectively some explanation and definitions are necessary.

The pappus of the *Eupatorium* tribe offers a wide variety, including nearly all forms found in the *Compositae*. Scales, distinct or connate,

blunt or bristle-tipped, as well as hairs truly capillary or setiform or awn-like, simple, barbellate, or plumose, rarely clavate or even gland-tipped, all occur within the tribe.

With rare exceptions it has been found possible to distinguish pretty readily between the truly capillary pappus of such genera as *Eupatorium*, *Mikania*, or *Brickellia* and the also terete but stiffer bristle-formed pappus characteristic of *Agrianthus* and of certain species to be segregated from *Ageratum*. On the other hand it is believed that this bristle-formed pappus can in practically all cases be distinguished from the scale-pappus of the true Ageratums and that it forms a useful basis of separation for some elements long classified with *Ageratum*. More difficult is the sharp distinction of plumose pappus from forms in which the setae are merely barbellate, and while this traditional character seems almost necessary at times it has been employed as sparingly as possible.

A distinction which is more important and which seems never to have been adequately studied even by close students of the *Compositae* is the difference between a very short cup-shaped, saucer-shaped, or coroniform pappus, such as occurs in *Ageratum* § *Coelestina*, and the similar low and often slightly angulate or toothed annulus which often crowns the mature achene in genera like *Alomia*, which lack all true pappus. When seen on fully ripe achenes from which the corolla has fallen away these structures often appear considerably alike, yet even in this late stage differences are usually to be noted. The true pappus, even when very rudimentary, inclines to be cup-shaped and possesses a thin edge. The annulus is a mere low usually thickish cartilagineous or fleshy ring with a blunt edge. If examined in a younger stage, while the corolla is still in place, it will be seen that the true pappus, however rudimentary, is distinctly exterior to the base of the corolla, while the annulus is merely the ringlike base from which the mature corolla disarticulates. This base sometimes enlarges slightly after the corolla falls and has in such species as *Ageratum echioides* or more properly *Alomia echioides* been taken for a true and much reduced pappus. In the peculiar genus *Jaliscoa* the annulus takes on a saucer shape and has frayed quasi ciliolate edge, yet when carefully examined in a young state it can be seen to be a sub-corollar rather than an extra-corollar structure.

To add to the complexity an intra-corollar disk is often present in various rudimentary forms, as for instance in minute fleshy or glandular papillae or in a fleshy ovoid, depressed-globose, or napiform enlargement at the base of the style, capable of some persistence in the mature achene.

The presence or absence of a true (though often much reduced) pappus becomes especially important in distinguishing *Ageratum* § *Coelestina* and *Alomia* and leads, as will be seen elsewhere in this paper, to some readjustment of generic lines. The character is believed to be a good one and to lead to a real distinction between groups which have hitherto been very poorly delimited.

To see clearly what is here meant it is only necessary to compare *Ageratum micropappum*, possessing a true but excessively reduced pappus, with *Ageratum heterolepis*, *A. echioides*, *A. microcephalum*, or *A. microcarpum*, all of which so far as observed by the writer have no real pappus but merely a sub-corollar annulus and in consequence are to be referred to *Alomia*.

The involucre in the *Eupatorium* tribe takes on many forms, all more or less intergrading. In *Eupatorium* itself, though the involucre goes through the whole gamut of variation, the number of species is so great that grouping by involucral differences has never appeared to be sharp enough to permit any satisfactory generic segregation of the elements concerned. It is very easy to refer certain marked species to *Osmia* Sch. Bip. and others to *Kyrstenia* Necker, but transitions are innumerable. On the other hand in many of the smaller genera involucral characters furnish distinctions of sectional or even generic value. Three types of involucre may be recognized as follows: 1) in which the chief scales are definite or subdefinite in number (four in *Mikania* and *Kanimia*, five or six in *Stevia*) often surrounded at the base by 1–3 considerably reduced scales i. e. calyculate. 2) the chief scales of indefinite number (though rarely very numerous) and subequal, appearing to be in 1–3 series and often accompanied by a very few much reduced outer ones. This is the common form of involucre in *Ageratum*, *Kuhnia*, etc. 3) scales of indefinite number (usually numerous) conspicuously unequal and gradually diminishing outward, forming apparently several to many series, though of course in reality spirally arranged. These three types of involucre, while sometimes confluent, are in general pretty readily distinguished.

There are also considerable differences in the texture of the involucral scales and to some extent these may be used, at least as supplementary aids, in distinguishing genera. Thus in *Ageratum*, most Alomias, and several other genera the scales are prevailingly of rather firm texture and pretty definitely 1–3-costate, while in *Brickellia*, *Hofmeisteria*, *Podophania*, *Oaxacania*, etc. the scales are prevailingly thin, flat, and finely striate.

One other character of special classificatory significance in the

Eupatorium tribe needs restatement with greater detail, namely the apical appendage of the anthers. It has long been customary to separate the subtribe *Piquerinae* on the ground that this apical appendage was there absent, yet to this subtribe have been referred several genera, such as *Adenostemma*, *Gymnocoronis*, *Hartwrightia*, *Podophania*, *Decachaeta*, *Helogyne*, and *Eupatoriopsis*, which exhibit such an apical appendage in various degrees of development, while in *Eupatorium* proper there are several species in which the appendage is decidedly rudimentary. It will thus be seen that the distinction between the *Piquerinae* and the *Ageratinae* breaks down completely unless it can be supplemented by other characters or restated with proper qualification. Persistent search has failed to discover any correlated differences, so it is necessary to make the most of the anther-appendage.

Examination of the typical *Piquerinae*, such as *Piqueria*, *Ophryosporus*, etc., shows that the anthers are entirely destitute of apical appendage, nor is the connective upwardly thickened or expanded in a way to cover the cells. If, however, the doubtful genera above mentioned are examined, it becomes evident that the rudimentary appendage assumes several distinguishable forms. In *Decachaeta* and *Podophania* it consists merely of an exceedingly short cushion-like expansion of the dilated summit of the connective. The connective is thus without change of texture broadened out until it partially or entirely covers the apices of the loculi, the whole anther being decidedly blunt or even slightly retuse. It is to be noted that there is here no membranaceous appendage in the stricter sense, and it seems best to retain these genera in the *Piquerinae*.

The next stage in the development of the apical appendage is seen in the three genera *Adenostemma*, *Gymnocoronis*, and *Hartwrightia*. In these there appears always to be at least a very short and decidedly retuse membranous appendage. This may be a single or simple structure or in *Adenostemma* it is sometimes so deeply divided in the middle that it virtually becomes two small membranous tips crowning and slightly prolonging the two loculi. In other respects these three genera manifest striking similarities, such as the form of the corolla and especially in the uniformly glandular faces of the achenes. Both on account of the seemingly close relationship among themselves and in order to permit a more precise definition of the *Piquerinae* it seems desirable to class these three genera in a new co-ordinate subtribe, the *Adenostemmatinae*.

In *Helogyne* and *Eupatoriopsis* the apical appendage assumes the

ovate-oblong form, fairly characteristic of other portions of the *Eupatorium* tribe, and these genera may well be transferred to the *Ageratinae* as has been earlier pointed out. See Proc. Am. Acad. xlii. 27 (1906). With these changes it is believed that the *Piquerinae*, *Adenostemmatinae*, and *Ageratinae* will be found fairly clear as subtribes. The fourth subtribe of the *Eupatorieae*, characterized by its more numerously ribbed achenes, has been known as the *Adenostylinae* from its (as assumed) typical genus, *Adenostyles* Cass. This genus, however, is one which has always been very dubiously placed with the *Eupatorieae* if classed with them at all. To the writer, after repeated examinations of the genus from various points of view, it seems clear that its real affinity is with the *Senecioneae*. Arguments for this view can be found in many minor details of habit, which taken together become convincing. The elongated style-branches alone would suggest a relationship with the *Eupatorieae*, but even these do not appear really eupatorioid. They tend to an attenuate rather than a clavellate form in the first place, and in the second they are inclined to be recoiled through a much greater arc than is usual among the *Eupatorieae*. Finally the unbranched portion of the style in *Adenostyles* is at maturity commonly exserted, while this would in the *Eupatorium* tribe be highly exceptional. With the removal from the *Eupatorium* tribe of the genus *Adenostyles* the remaining portion of the subtribe hitherto known as the *Adenostylinae* must in accordance with Art. 52 of the International Rules of Botanical Nomenclature be renamed. It may be called the *Kuhniinae*.

The genus *Mallinoa* Coult. Bot. Gaz. xx. 47 (1895) was doubtfully ascribed by its author to the *Inuleae*, its anthers being described as sagittate and being figured (l. c. t. 5, f. 4) as having acute auricles at the base of the anther-cells. Soon after its publication Hoffmann in Engl. & Prantl, Nat. Pflanzenf. Nachtr. 322 (1897) placed *Mallinoa* in the *Eupatorieae*, where there can be no doubt it in reality belongs. For some reason not made clear, Hoffmann, though recognizing the eupatorioid nature of *Mallinoa* placed it next *Trichogonia*, with which it has no close habital resemblance nor striking likeness of involucre or pappus. To the writer *Mallinoa* seems to be merely a species of the genus *Eupatorium*, exceedingly close to the long known *E. bellidifolium* Benth. In foliage, gesture, and inflorescence these plants possess a resemblance amounting almost to identity. *Mallinoa*, however, is readily distinguished (specifically) by its decidedly broader, blunter, and much smoother involucral bracts. In the light of excellent material of both plants secured by Mr.

Pringle, the writer finds that the anther-bases in *Mallinoa* are cordate rather than sagittate, the basal auricles being decidely rounded. In *Eupatorium bellidifolium* furthermore the anther-bases are also retuse, the condition being very similar and the difference merely a trifling one of degree and in no sense one of kind. The degree of difference is closely comparable to that shown between fig. 2 and fig. 3 on plate 9 of Bentham's classical "Notes" (Jour. Linn. Soc. xiii.). It will be noticed that Bentham, whose experience and judgment upon these matters have probably never been surpassed, admits the occurrence of anthers of both these types in the *Eupatorium* tribe (l. c. 360). If admitted to the *Eupatorium* tribe at all, *Mallinoa* cannot be kept out of the genus *Eupatorium* as at present delimited.

Regarding the transfer of *Apodocephala* Bak. to the *Vernonieae*, see Proc. Am. Acad. xlii. 32 (1906), and of *Lepidesmia* Klatt to the *Helianthеae*, see Proc. Am. Acad. xlvii. 210 (1911).

Further study, especially of the larger genera, may well reveal profitable generic segregations not as yet clear. This is especially likely to be the case among the numerous and as yet very imperfectly known South American members of the tribe. It is also by no means improbable that when these are more satisfactorily represented in herbaria some new and more convincingly natural re-adjustment of generic lines will become possible. Furthermore, it is to be remembered by users of the following key that disconcerting exceptions and anomalies occur here as elsewhere among the *Compositae*, as for instance four-, six-, or even seven-angled achenes among the normally 5-angled ones in the *Ageratinae*, or occasionally calvous achenes in certain heads of the normally pappus-bearing genera *Trichogonia* and *Ageratum*.

Subtr. I. PIQUERINAE. Antherae apice omnino exappendiculatae vel a connectivo sursum leviter incrassato et supra loculos plus minusve lateraliter expanso truncato vel retuso terminatae. Achaenia non glandulari-papillifera.

a. Pappus nullus vel rarissime brevissime obsoleteque setosus. . 1. *Piqueria*
a. Pappus setosus *b*.
  b. Pappi setae laeves vel modice scabratae *c*.
    c. Pappi setae saepissime 10 sursum clavellatae. Folia pleraque alterna 3-lobata vel non lobata. Capitula parva numerosa subsessilia paniculata. . . . . 2. *Decachaeta*.
    c. Pappi setae tenues non clavellatae. Folia opposita dissecta. Capitula axillaria longe pedunculata. . . . . 3. *Podophania*.
  b. Pappi setae plumosae. . . . . 4. *Ophryosporus*.

a. Pappus squamosus *d.*
d. Pappi squamulae breves fimbriatae. Ind. Occ. ..... 5. *Phania.*
d. Pappi squamulae longae integrae apice in aristam attenuatae. Mex. ..... 6. *Ageratella.*

Subtr. II. **Adenostemmatinae**, subtr. nov. Antherae apice breviter appendiculatae, appendice membranacea aut simplici et retusa aut bifida et apices loculorum coronante. Corollae tubus brevis et fauces infundibulares. Achaenia obovoidea glandulari-papillosa.

a. Pappus e setis brevibus 3–5 clavatis ab annulo patentim ascendentibus compositus ..... 7. *Adenostemma.*
a. Pappus nullus vel brevissime obsoleteque setosis, setulis numquam clavatis *b.*
b. Receptaculum nudum. Folia opposita dentata. Mex., Am. Aust. 8. *Gymnocoronis.*
b. Receptaculum margine paleiferum. Folia alterna integra. Fla. 9. *Hartwrightia.*

Subtr. III. AGERATINAE. Antherae apice cum appendice membranacea ovata vel oblonga integra vel retusa instructae. Achaenia normaliter 5(rarissime 4–6)-angulata prismatica vel subprismatica rariter compressa eglandularia vel rariter glandulari-atomifera.

a. Pappus e squamis distinctis vel basi connatis aut ex aristis deorsum squamiforme expansis aut ex aristis et squamellis aut e corona dentata vel fimbriata vel integra compositus aut omnino deficiens *b.*
b. Involucri squamae 5–6 uniseriales subaequales cum vel absque 1–3 squamulis extimis multo brevioribus ..... 10. *Stevia.*
b. Involucri squamae ∝ saepius numerosa 2–∝-seriatae *c.*
c. Pappus evolutus e squamis aut distinctis tenuibus vel rare indurescentibus aut in cupulam coroniformem tenuem scariosam dentatam vel integram connatis compositus rarissime (apud *Agerati* spp.) obsoletus *d.*
d. Involucri squamae valde inaequales ∝-seriatim imbricatae *e.*
e. Pappus coronam crateriformem margine laciniatam formans. Folia bipinnatifida. Bras. ..... 11. *Lomatozona.*
e. Pappus e squamulis brevibus obovatis vel oblongis obtusis compositus *f.*
f. Receptaculum pilosiusculum. Pappi paleae apicem versus denticulatae. Folia penninervia. Bras. ..... 12. *Carelia.*
f. Receptaculum paleaceum. Pappi paleae breviter fimbriatae. Folia 3-nervia. Mex. ..... 13. *Aschenbornia.*
e. Pappus ex aristis cum squamulis alternantibus aut ex aristis basi squamiforme dilatatis compositus *g.*
g. Folia sessilia linearia subintegra. Herba annua. Calif. infer. ..... 14. *Malperia.*
g. Folia longiuscule petiolata dentata vel lobata vel dissecta. Frutices vel suffrutices. ..... 15. *Hofmeisteria.*
d. Involucri squamae subaequales 2–3-seriales cum vel absque squamulis 1–3 extimis multo brevioribus *h.*
h. Pappi squamae distincte indurescentes. Folia verticillata. Am. Bor. atlant. ..... 16. *Sclerolepis.*

h. Pappus tenuis non indurescens. Folia opposita vel alterna *i.*
i. Corollae tubus bene distinctus subfiliformis in fauces discrepitante ampliatas campanulatas subito transiens. Folia subcoriacea. Suffrutices. Mex. . . 17. *Oxylobus.*
i. Corollae tubus saepissime brevis, faucibus vix distinctis vel solum modice ampliatis. Folia membranacea. . . . . 18. *Ageratum.*
c. Pappus verus nullus, achaeniis tamen cum annulo sub corolla numquam extra corollam orienti coronatis *j.*
j. Achaenia 4–5-angulata. Involucrum non foliaceum *k.*
k. Achaenia prismatica *l.*
l. Herbae vel frutices non repentes . . . . . 19. *Alomia.*
l. Herba repens. Columbia. . . . . 20. *Tuberostyles.*
l. Frutex. Caulis fistulosus et maturitate clathratus. Mex. 21. *Jaliscoa.*
k. Achaenia compressiuscula. Frutex, foliis alternis suborbicularibus sinuato-lobulatis. Mex. . . . . 22. *Oaxacania.*
j. Achaenia 6-angulata. Involucri squamae exteriores subfoliaceae. Bras. . . . . 23. *Planaltoa.*
a. Pappus setosus, setis capillaribus vel firmiusculis, liberis vel basi in annulum coalitis *m.*
m. Pappi setae plumosae *n.*
n. Achaenia compressa. Pappi setae brevissimae. Bras. 24. *Eupatoriopsis.*
n. Achaenia prismatica *o.*
o. Pappi setae firmiusculae saepissime breves non rite capillares *p.*
p. Capitula sessilia. Folia squamiformia imbricata 25. *Agrianthus.*
p. Capitula pedicellata. Folia cum lamina normali 27. *Trichogonia?* [1]
o. Pappi setae capillares plumosae *q.*
q. Corollae fauces subcampanulatae a tubo proprio differentiatae 27. *Trichogonia.*
q. Corolla graciliter tubulata sine faucibus distinctis *r.*
r. Folia alterna. Frutices xerophyticae. Am. Aust. occ. 28. *Helogyne.*
r. Folia opposita. Herba. Am. Bor. aust.-occ. et Mex. 29. *Carminatia.*
m. Pappi setae capillares simplices laeves vel modice scabratae *s.*
s. Achaenia valde compressa. Pappi setae 2. Mex. 30. *Schaetzellia.*
s. Achaenia prismatica. Pappi setae 5–∞ *t.*
t. Pappi setae longitudine valde conspicueque inaequales. Am. Aust. 31. *Dissothrix.*
t. Pappus uniformis vel subaequalis *u.*
u. Pappi setae brevissimae paucae longitudine crassitiem achaenii vix aequantes. . . . . 32. *Trichocoronis.*
u. Pappi setae achaenii longitudinem subaequantes *v.*
v. Pappi setae caducae *w.*
w. Involucri squamae valde inaequales ∝-seriatim imbricatae. Folia opposita. Mex. . . . . 33. *Piptothrix.*
w. Involucri squamae subaequilongae ca. 2–3-seriatim laxe imbricatae. Folia alterna. Bras. . . . . 34. *Leptoclinium*

---

1 Hic expeterentur species quaedam adhuc dubiae ex *Agerato* ob pappo setiformi expulsae et ad *Trichogoniam* valde approximantes.

v. Pappus persistens *x*.
x. Pappi setae basi in annulum crassiusculum coalitae. Folia coriacea. Bras.....35. *Symphyopappus*.
x. Pappi setae basi liberae vel levissime inconspicueque coalitae. Folia saepissime membranacea *y*.
y. Involucri squamae ut flosculi ∝ *z*.
z. Pappi setae subdefinitae saepissime 5. 36. *Fleischmannia*.
z. Pappi setae ∝ numerosae. Receptaculum nudum vel obscure setiferum.....37. *Eupatorium*.
z. Pappi setae ∝ numerosae. Receptaculum paleiferum. Folia magna. Mex.....38. *Eupatoriastrum*.
y. Involucri squamae definitae 4. Flosculi etiam 4. Herbae vel frutices saepissime volubiles..39. *Mikania*.

Subtr. IV. **Kuhniinae**, nom. nov. Antherae apice cum appendice membranacea ovata vel oblonga munitae. Achaenia 10–20 (rariter 6–9)-costata.— *Adenostylinae* auct. excl. *Adenostyle* genere ipsissimo nominiferente.

a. Involucri squamae definitae 4. Flosculi etiam 4.....40. *Kanimia*.
a. Involucri squamae ∝ saepissime numerosae *b*.
b. Pappus setosus *c*.
c. Receptaculum nudum *d*.
d. Achaenia compressa. Foliorum dentes saepissime setiferae. Mex. 41. *Barroetea*.
d. Achaenia prismatica vel teretia *e*.
e. Involucri squamae valde inaequales pluriseriatim imbricatae *f*.
f. Involucri squamae tenues striatae vix herbaceae. Pappi setae uniseriatae laeves vel barbulatae. Folia opposita vel alterna 42. *Brickellia*.
f. Involucri squamae herbaceae vel coloratae vel scariosae non conspicue striatae. Pappi setae uniseriatae saepissime plumosae rariter barbulatae. Herbae perennes, caule saepius simplici basi tuberoso.....43. *Liatris*.
f. Involucri squamae herbaceae. Pappi setae 2–3-seriatae, exterioribus brevioribus. Frutex foliis alternis obovatis. Fla. 44. *Garbera*.
e. Involucri squamae subaequales 2–3-seriatae. Folia saepissime alterna *g*.
g. Pappi setae capillares conspicue plumosae....45. *Kuhnia*.
g. Pappi setae firmiusculae vix barbulatae.....46. *Trilisa*.
c. Receptaculum paleiferum. Folia alterna.....47. *Carphephorus*.
b. Pappus ex aristis basi squamiforme dilatatis compositus. Folia opposita. Am. Bor. aust.-occ. et Mex.....48. *Carphochaete*.

II. REVISIONS OF ALOMIA, AGERATUM, AND OXYLOBUS.

By B. L. Robinson.

The following treatment has been based chiefly upon an intensive study of the pertinent material in the Gray Herbarium, but much aid has been derived from a series of photographs, taken at various European herbaria in 1905 and 1910, representing the types of nearly all the recognized species of *Alomia* and *Ageratum* not originally described from the Gray Herbarium. There has been no opportunity to test the keys and descriptions by a re-examination of the extensive material in foreign collections, but through the kindness of Messrs. Coville and Maxon the writer has been permitted to borrow and study the representation of *Alomia* and *Ageratum* from the National Museum at Washington, a considerable privilege for which he would express grateful appreciation. The writer is also much indebted to Mr. John Donnell Smith for the loan of *Ageratum* and *Alomia* from his rich personal herbarium, and to Mr. A. B. Rendle of the British Museum of Natural History for the critical comparison establishing beyond doubt the identity of *Ageratum Houstonianum* Mill. Miss M. A. Day and Miss E. M. Vincent of the Gray Herbarium staff have given bibliographical aid.

It may be said in a general way that the species of these genera do not tend to serious intergradation, except in the case of *Ageratum conyzoides* L. and *A. latifolium* Cav. (not Hemsl.), where separation though easily made seems pretty artificial, and on the other hand the several species which are closely allied to the highly variable *A. corymbosum* Zuccag. and are distinguished chiefly by such characters as leaf-contour, pubescence, etc.

It must be frankly admitted that the treatment of the South American species is very sketchy, being derived from wholly inadequate material. It is highly probable that further exploration of northern South America and of Brazil will bring to light many further species, and perhaps considerably modify our present views as to the distinctness of those already known.

1. Revision of the Genus Alomia.

The tropical American genus *Alomia* is a convenient rather than a convincingly natural group of species. Depending for its separation

from *Ageratum* and *Trichogonia* solely on the absence of pappus, the genus may well have a composite — at least a double — origin. Either a *Trichogonia*, on the loss of its plumose pappus-bristles (a condition known to occur in *T. menthaefolia* and *T. salviaefolia* Gardn.), or an *Ageratum*, on the complete abortion of its often obsolescent scale-pappus, would become as to technical characters an *Alomia*, and the fact that the genus *Alomia*, as now circumscribed, contains species of a wide range of habit, extending on the one hand from the original *A. ageratoides*, with distinctly ageratoid habit, to *A. dubia*, on the other, which except for the lack of pappus would certainly be placed in *Trichogonia*, it appears by no means unlikely that the elements now grouped in *Alomia* may have come in part from an ageratoid and in part from a *Trichogonia*-like ancestry.

Although from these considerations *Alomia* may seem an artificial group, its components certainly have close affinity and our present knowledge does not permit any improvement of the situation either by dividing the genus on trifling traits of habit or by merging it bodily with any of the neighboring genera.

The three species here grouped as a new subgenus, *Geissanthodium*, possessing softer much imbricated involucral scales (striate in the manner of *Brickellia*), form an interesting strain, a small presumably natural group. After careful comparison of *A. alata* Hemsl. and *Ageratum callosum* Wats. it is impossible to see any grounds for their generic separation. Either *Ageratum callosum* must be referred to *Alomia* or the genus *Alomia* must be transferred to *Ageratum*. The close relationship of the third species of this subgenus, the South American *A. Regnellii* Malme, although less convincing, seems highly probable to judge from Malme's description and figures. Some specious arguments might be advanced for the separation of these three species as a new genus, but their distinctions from other species of *Alomia* are not strong. Involucral characters in nearly related genera are seen to be highly inconsistent and it is to be noticed that the imbrication of the scales is by no means so striking in the Brazilian *A. Regnellii* as in the Mexican species. Nor is the undifferentiated corolla-tube a strong character. It seems best therefore to treat the group merely as a subgenus.

Alomia tenuifolia (the genus *Lycapsus* of Philippi), a xerophytic shrub confined to a small island off the coast of Chili, is still obscure. It does not appear to be represented in the leading European or North American herbaria. Bentham, judging it merely by the description and crabbed little figures of Philippi, placed it in *Alomia*.

This may be its real affinity, but it is to be noted that Philippi represents the style-branches as being recoiled through more than 360°. This would be highly exceptional in the *Eupatorieae*. Furthermore, the style-branches as shown in Philippi's figures are unusually short for the tribe. Until material of this rare and local plant can be obtained and subjected to further study the species would better be left here, where Bentham placed it, but it would seem almost as likely to prove one of the *Heliantheae*, perhaps near *Isocarpha*.

As explained elsewhere in this paper, the rudimentary annular or coroniform "pappus," accredited in the past to several species hitherto placed in *Ageratum*, proves not to be a true pappus, i. e. a calycular structure exterior to the corolla, but only an annulus upon which the corolla itself is borne and which after the disarticulation and fall of the corolla sometimes is slightly accrescent. These species, destitute of a true pappus, must certainly be transferred to *Alomia* if that genus is to be kept distinct from *Ageratum* and they are so treated in the following revision.

While in nearly all of the species concerned the presence or absence of a pappus is upon careful observation sufficiently evident and constant to permit a pretty ready separation of species into those which should be referred to *Alomia* on the one hand and those which would better be placed in *Ageratum* on the other, there are two exceptional species, *Ageratum littorale* Gray and *A. maritimum* HBK., in which the distinction breaks down absolutely. Here the pappus may be entirely wanting, it may consist of minute teeth, very short and slightly exterior to the corolla, or finally it may develop into a perfectly definite and conspicuous scale-pappus. These marked variations in pappus occur in individuals of precisely similar habit, and so far as can be ascertained are accompanied by no concomitant changes of structure. This wide intra-specific variation presents, of course, a technical difficulty in delimiting the genera *Ageratum* and *Alomia*. However, it is to be remembered that calvous forms in normally pappus-bearing *Compositae* are by no means rare and must be accepted as one of the inherent difficulties of the group. It would be highly artificial to transfer to *Alomia* the calvous forms of *Ageratum littorale* and *A. maritimum*, nor does it seem best to unite with the otherwise consistently pappus-bearing genus *Ageratum* the consistently calvous genus *Alomia* because in certain exceptional species an abortion of the pappus occurs inconstantly, as it does also in *Trichogonia menthaefolia* Gardn., *Calea peduncularis* HBK., and various other *Compositae* in which the loss of pappus can in no sense be regarded as having generic significance.

Alomia was confused by Gardner with *Piqueria* and *Gymnocoronis*, but may be readily distinguished by its apically appendaged anthers. *Orsinia* Bert., associated with his *Piqueria* § *Eupiqueria* by Gardner in Hook. Lond. Jour. Bot. vi. 430 (1847), and with *Alomia* by Baker in Mart. Fl. Bras. vi. pt. 2, 189 (1876), and even by Dalla Torre & Harms, Gen. Siph. 526 (1905), is a *Clibadium*, as was indicated by Bentham, Gen. ii. 240 (1873).

ALOMIA HBK. (Nomen ex ἀ privativo et λῶμα, *margo*, defectionem pappi alludens.) Capitula homogama parva vel mediocra saepe numerosa laxe paniculata vel in apicibus ramorum corymbulosa 20–70-flora; involucri campanulati vel subturbinati squamis vel subaequalibus ca. 2-seriatim imbricatis lanceolato-linearibus saepissime acutis 1–3-costatis firmiusculis vel valde inaequalibus 3–∞-seriatim imbricatis tenuioribus striatulis; receptaculo plano vel conico nudo vel plus minusve paleifero, paleis saepe angustis. Corollae albae vel roseae vel purpureae saepissime extus glandulis subsessilibus conspersae rarius in tubo vel limbo hirsutae vel tomentosae rarissime glabrae. Antherae oblongae apice appendiculatae basi rotundatae haud rarenter vix connatae. Styli rami filiformi-clavellati purpurei vel flavi vel aurei rectiusculi vel leviter recurvantes vel per exceptionem (Subg. 3) spiraliter recurvati. Achaenia prismatica 5-angularia glanduloso-atomifera vel hispidula vel glabra fusca vel nigrescentia basi callosa apice annulo cartilagineo vel carnoso integerrimo vel angulato conspicuo vel tenuissimo vel omnino obsoleto coronata; pappo nullo.— Nov. Gen. et Spec. iv. 151, 312, t. 354 (1820); Cass. Dict. Sci. Nat. xxvi. 227 (1823); Less. Syn. Comp. 154 (1832); DC. Prod. v. 105 (1836); Endl. Gen. 366 (1838); Benth. & Hook. f. Gen. ii. 240 (1873); Pfeiff. Nom. i. 116 (1873); Hoffm. in Engl. & Prantl, Nat. Pflanzenf. iv. Ab. 5, 135 (1890); Dalla Torre & Harms, Gen. Siph. 526 (1905), excl. syn. *Orsinia*. *Piqueria* sect. *Alomia* (HBK.) Gardn. in Hook. Lond. Jour. Bot. vi. 430 (1847), excl. spp. *attenuata, eupatorioides, latifolia, subcordata;* Walp. Ann. i. 393 (1848), ex parte. *Lycapsus* Phil. Bot. Zeit. xxviii. 499, t. 8 (1870). *Adenostemma* sect. *Alomia* Baill. Hist. Pl. viii. 131 (1882).— Herbae annuae vel perennes vel suffrutescentes rarissime frutices. Folia ovata vel rhomboidea vel lanceolata vel linearia pleraque serrata vel dentata rarius integriuscula rarissime profunde pinnatifida. Inflorescentia corymbosa vel paniculata. Habitus *Agerati* aut *Trichogoniae*. Species 12 quarum 3 mexicanae, 1 (ulterius inquirenda) insulam chilensem incolens, ceterae Brasiliam centrali-meridionalem habitantes.

Clavis subgenerum.

Involucri squamae 3–∞-seriatim imbricatae tenues striatulae. Corolla in tubum proprium et fauces distinctas non differentiata. Herbae
Subg. 1. GEISSANTHODIUM.
Involucri squamae ca. 2-seriatim (apud *A. heterolepidem* pluriseriatim) imbricatae saepius firmiusculae 1–3-costatae. Corolla cum tubo proprio graciliore definito et faucibus plus minusve ampliatis.
Styli rami rectiusculi vel modice recurvantes. Folia numquam profunde pinnatifida.....Subg. 2. EUALOMIA.
Styli rami spiraliter recurvati. Folia pinnatifida lobis linearibus
Subg. 3. LYCAPSUS.

Subg. 1. **Geissanthodium,** subg. nov. (Nomen ex γεῖσσον, *protectum* sensu imbricatum, et *anthodium* i. e. involucrum, ab ἀνθώδης, derivatum.) Involucri squamae (more earum *Brickelliae*) multiseriatim imbricatae tenues virides aut purpurascentes saepe tenuiter albido-striatae, exteriores gradatim breviores. Corollae graciliter tubulatae, tubo proprio haud discreto, faucibus distinctis nullis, limbo brevi quinquifido. Styli rami filiformi-clavellati rectiusculi vel leviter curvati saepissime flavi vel aurei. Achaenia per coronam carnosam albidam integerrimam coronata.— Herbae nunc perennes nunc verisimiliter annuae pubescentes. Folia longiuscule petiolata saltim inferiora opposita superiora saepius alterna. Species 2 calciphilae mexicanae necnon 1 brasiliana.

Clavis specierum.

Folia crenato-serrata. Species mexicanae.
Caulis glanduloso-puberulus nec longius pilosus. Petioli sursum anguste alati. Folia late cordata.....1. *A. alata.*
Caulis glanduloso-puberulus et lanato-pilosus. Petioli exalati. Folia non cordata.....2. *A. callosa.*
Folia grosse inciseque dentata. Species brasiliana.....3. *A. Regnellii.*

1. A. ALATA Hemsl. herbacea perennis gracilis decumbens vel saepe a rupibus pendula laxe ramosa; caulibus 4–6 dm. longis teretibus striatulis tenuissime glanduloso-puberulis; foliis deltoideo-ovatis late cordatis crenato-serratis tenuibus utrinque viridibus supra leviter pubescentibus subtus praesertim in nerviis venisque pilosis 2.5–5.5 cm. longis 1.5–5 cm. latis, petiolis 1–7 cm. longis saepissime apicem versus anguste alatis; capitulis laxe et irregulariter corymboso-paniculatis, pedicellis filiformibus saepius brevibus; involucri turbinato-campanulati squamis lineari-lanceolatis viridibus vel purpurascentibus albido-striatulis apice attenuatis extimis puberulis ceteris glabriusculis; corollis 3.6 mm. longis graciliter tubulatis viridescenti-albis plus minusve atomiferis limbum brevissimum versus subconstrictis; achaeniis 2.2 mm. longis basi callosis apice annulo turgido carnoso coronatis a

glandulis subsessilibus sparse conspersis.— Biol. Cent.-Am. Bot. ii. 79 (1881).— MEXICO: in rupibus abruptis umbrosis vallicularum prope Cuernavacam, *Bourgeau*, n. 1216 (hb. Gray.), *Bilimek*, n. 579 f. Hemsl. l. c., *Pringle*, nn. 6229, 9846 (hb. Gray., hb. U. S. Nat. Mus.); Guadalupe, *Bilimek*, n. 488 (hb. Gray.).

2. **A. callosa** (Wats.), comb. nov., herbacea gracilis; caulibus teretibus saepe purpureo-brunneis brevissime glanduloso-puberulis et conspicue griseo-pilosis sublanatis quamquam aetate glabriusculis 3–6 dm. longis oppositirameis; foliis oppositis ovatis obtusiusculis vel acutis crenato-serratis basi obtusis vel subtruncatis 3-nerviis tenuibus utrinque laxe pubescentibus 2–6 cm. longis 1–4 cm. latis, petiolo 1–3 cm. longo exalato; capitulis laxe corymbosis; involucri campanulati squamis multiseriatim imbricatis anguste lanceolato-oblongis acutis mucronulatis erosis; corollis graciliter tubulatis a basi ad limbum sensim ampliatis sed sine faucibus ullis distinctis viridescenti-albis 3.2 mm. longis glandulis minutis subsessilibus conspersis; achaeniis 1.2 mm. longis atropurpureis in costis 5 glanduloso-puberulis apice coronam carnosam integerrimam crateriformem gerentibus.— *Ageratum callosum* Wats. Proc. Am. Acad. xxv. 153 (1889).— MEXICO: in rupibus humidis prope Guadalajaram, *Pringle*, nn. 2166 (hb. Gray.), alt. 1525 m., 4739 (hb. U. S. Nat. Mus., hb. J. D. Sm.), n. 9353 (hb. Gray., hb. U. S. Nat. Mus.).

3. A. REGNELLII Malme, herbacea perennis ad 3 dm. alta; caule tereti subsimplici molliter patentimque piloso et etiam glanduloso-puberulo; foliis oppositis vel superioribus alternis tenuibus deltoideis vel late ovatis glanduloso-pilosis usque ad 4.5 cm. longis et ad 4 cm. latis acutis grosse inciseque dentatis basi rotundatis vel ad insertionem petioli plus minusve cuneatis utrinque viridibus supra parce glandulosis vel glabriusculis subtus glandulosis et in nerviis molliter pilosis, petiolo 1.5–3 cm. longo; capitulis laxe cymosis ca. 40-floris, pedicellis bracteolisque glanduloso-puberulis, involucri campanulati squamis valde inaequalibus ovato-lanceolatis vel lanceolatis vel interioribus lineari-oblanceolatis viridibus pilosis apicem versus ciliatis; receptaculo plano nudo; corollis albis caerulescentibus ca. 3 mm. longis a basi ad limbum sensim ampliatis tubo extus intusque glabro sed dentibus limbi extus plus minusve pilosiusculis; achaeniis ca. 2.5 mm. longis subprismaticis vel graciliter turbinatis nigris nitidis glabris vel basi et sub apice pilis brevissimis paucis caducis munitis.— Kongl. Sv. Vet. Akad. Handl. xxxii. n. 5, 32, t. 2 (1899).— Brasiliae prov. MATTO GROSSO, in fissuris rupium praeruptarum, Serra da Chapada, Buriti, locos subumbrosos praesertim habitans, *Malme*, n. 1678. Sp. non visa, solum e descriptione et icone optimis cl. Malmei interpretata.

Subg. 2. **Eualomia,** subg. nov. Involucri squamae (more *Agerati* earum) subaequales saepissime firmiusculae 1–3-costatae. Corollae cum tubo proprio saepe brevi et faucibus plus minusve cylindraceis munitae. Styli rami filiformes vel leviter clavellati patente recurvati saepius purpurascentes. Achaenia ecoronata vel coronam tenuem cartilagineam integerrimam ferentia.— Herbae annuae vel perennes vel suffrutescentes. Folia rhomboideo-ovata vel lanceolata vel linearia. Species 9, quarum una mexicana est ceterae Brasiliam centrali-meridionalem incolunt.

Clavis specierum.

a. Receptaculum paleiferum *b.*
  b. Herbae annuae *c.*
    c. Folia anguste linearia. Capitula 8 mm. diametro.....4. *A. Pohlii.*
    c. Folia lanceolata. Capitula 5 mm. diametro.....5. *A. foliosa.*
  b. Herbae perennes vel frutices *d.*
    d. Paleae receptaculi apice obtusiusculae vel acutae saepius erosae vel pilosae numquam induratae *e.*
      e. Folia lineari-oblanceolata tenuia inciso-dentata 6. *A. fastigiata.*
      e. Folia late rhomboidea inciso-dentata submembranacea 7. *A. myriadenia.*
      e. Folia lanceolata vel oblonga, serrata vel integra, coriacea *f.*
        f. Capitula 6–8-flora.....8. *A. longifolia.*
        f. Capitula ca. 36-flora.....9. *A. heterolepis.*
    d. Paleae receptaculi apice subulato-attenuatae plus minusve induratae glabrae *g.*
      g. Caulis per fere totam longitudinem foliosus *h.*
        h. Folia subtus glandulis numerosissimis crebre punctata cum pilis sparsissimis vel nullis munita *i.*
          i. Involucri squamae costatae *j.*
            j. Involucri squamae glanduloso-atomiferae aliter glabrae lineares rigidiusculae. Folia lanceolata 10. *A. microcephala.*
            j. Involucri squamae fere eglandulosae sed sub lente conspicue pubescentes et ciliatae lanceolatae. Folia fere linearia.....11. *A. guatemalensis.*
          i. Involucri squamae planae latiusculae ovatae ecostatae 12. *A. platylepis.*
        h. Folia subtus velutino-pilosa.....13. *A. isocarphoides.*
      g. Caulis superne nudiusculus. Folia subtus pilosa 14. *A. echioides.*

a. Receptaculum nudum *k.*
  k. Folia angusta, linearia vel lanceolata vel oblanceolata *l.*
    l. Capitula 30–35-flora. Folia sublinearia. Pedicelli breves (3–4 mm. longi). Corolla ca. 2 mm. longa.....15. *A. cinerea.*
    l. Capitula ca. 65-flora. Folia oblanceolata. Pedicelli 6–8 mm. longi. Corolla ca. 4 mm. longa.....16. *A. dubia.*
  k. Folia latiora, cordato- vel rhomboideo-ovata *m.*
    m. Capitula laxe scorpioideo-cymosa patentim paniculata. Mex. 17. *A. ageratoides.*

m. Capitula dense corymbosa *n*.
n. Capitula 12–15-flora. Folia irregulariter grosse dentata. Annua. Bras.....18. *A. angustata.*
n. Capitula 60–70-flora. Mex., Am. Cent., Venez. *o*.
o. Perennis. Corymbi laxi patentes planiusculi. Folia acute acuminata et serrata. Mex.....19 *A. Wendlandii.*
o. Annua. Capitula in cymis congestis valde convexis vel subglobosis disposita. Folia crenata saepissime obtusa. Costa Rica et (dubitative) Venez.....20. *A. microcarpa.*

4. A. POHLII (Sch. Bip.) Bak., annua erecta vel ascendens parce ramosa; radice fibrosa; caule glabriusculo 3–4.5 dm. alto, ramis divergentibus pilosiusculis; foliis plerisque oppositis supremis solum alternis linearibus 4–7 cm. longis vix 2 mm. latis planis utrinque viridibus et pilosiusculis obscure arguteque serratis apice basique acutatis uninerviis; capitulis ca. 8 mm. diametro ca. 35-floris ad apices ramorum in corymbis parvis confertis graciliter pedicellatis; involucri subhemisphaerici squamis subaequalibus oblongis obtusis viridibus vel apicem versus purpureis extus glanduloso-puberulis margine et praesertim apice membranaceo expanso translucido conspicue ciliatis; receptaculo conico cum paleis angustissime oblanceolati-linearibus instructo; corollis 2.8 mm. longis subglabris vix basin versus cum glandulis paucis subsessilibus conspersis, tubo proprio vix ullo, faucibus fere ab apice achaenii ampliatis; achaeniis nigris saepe curvatis cum glandulis parce conspersis neque basi callosis nec apice annulo coronatis ca. 1.9 mm. longis.— Bak. in Mart. Fl. Bras. vi. pt. 2, 190 (1876). *Coelestina Pohlii* Sch. Bip. ex Bak. l. c.— BRASILIA: "inter Manoël Souza et Mideroz," *Pohl*, n. 358 (hb. Berol., phot. et fragm. in hb. Gray.); Lagoa Santa prov. Minas Geraës, *Warming*.

5. A. FOLIOSA (Gardn.) Benth. & Hook. f., annua 2–3 dm. alta decumbens vel suberecta griseo-pilosa vel subtomentosa; radice fibrosa; caule paucirameo foliosissimo; foliis parvis 3-nerviis 1.5–2 cm. vel ultra longis ca. 6 mm. latis lanceolatis vel oblongo-lanceolatis oppositis arcte sessilibus tenuibus apice basique acutis acute serratis utrinque griseo-pilosis; capitulis in apicibus ramorum paucis aggregatis parvis 5 mm. solum diametro; involucri hemisphaerici vel campanulati squamis subaequalibus biseriatis herbaceis oblongis griseo- vel praesertim ad apicem obtusum plus minusve translucidum purpurascenti-pilosis et ciliatis 2.8–3.4 mm. longis; receptaculo conico cum paleis parvis angustis deciduis instructo; corollis 2.5 mm. longis roseis vel pallide purpureis subglabris, dentibus limbi papillosis, tubo proprio vix ullo in fauces confestim ampliato; achaeniis nigris prismaticis parce glandulosis 1.8 mm. longis.— Gen. ii. 240 (1873); Bak. in Mart. Fl. Bras. vi. pt. 2, 190 (1876). *Isocarpha foliosa* Gardn. in

Hook. Lond. Jour. Bot. v. 457 (1846); Walp. Rep. vi. 703 (1847). *Piqueria foliosa* Gardn. l. c. vi. 432 (1847). *Emmallocalyx chamaedrifolius* Pohl ex Bak. l. c. (1876).— BRASILIA: prov. Minas Geraës ad ripas inundatas fluminis Urucuyae prope San Romão, *Gardner*, n. 4838; sine loco indicato, *Claussen*, *Pohl*, n. 669 (hb. Berol., phot. et fragm. in hb. Gray.); prov. Bahia ad Utinga, *Blanchet*, n. 2754, fide Bak. l. c.

6. A. FASTIGIATA (Gardn.) Benth., suffruticosa fastigiatim ramosa 4–9 dm. alta foliosissima; ramis gracilibus teretibus pallide brunnescentibus crispe puberulis vel glabriusculis; foliis oblanceolatis vel lineari-lanceolatis incise serratis vel integriusculis basi attenuatis apice acutatis vel attenuatis utrinque viridibus subtus vix pallidioribus puncticulatis 2–8 cm. longis 4–8 mm. latis saepius alternis et fasciculatis; capitulis parvis 20–40-floris 3.5 mm. diametro subdense corymbosis; involucri campanulati squamis lanceolatis viridibus pilosiusculis; receptaculo convexo vel planiusculo cum paleis oblongis paucis instructo; corollis albis (Gardner) vel rubris (Baker) vel lilaceis (Ktze.) 1.6 mm. longis, tubo proprio granuloso fauces cylindratas glabras subaequante; achaeniis graciliter prismaticis glabris acutangularibus 1.4 mm. longis.— Benth. ex Bak. in Mart. Fl. Bras. vi. pt. 2, 192 (1876). *Isocarpha fastigiata* Gardn. in Hook. Lond. Jour. Bot. v. 455 (1846). *Piqueria fastigiata* Gardn. l. c. vi. 431 (1847). *P. polyphylla* Sch. Bip. ex Bak. l. c. 191 (1876). *Alomia polyphylla* (Sch. Bip.) Bak. l. c. (1876). *Coelestina linearifolia* Sch. Bip. ex Bak. l. c. (1876).— BRASILIA: prov. Minas Geraës in regione Adamantium, locis humidis, *Gardner*, n. 4837 (hb. Kew., phot. in hb. Gray.); Contendas, *Kuntze* (hb. U. S. Nat. Mus.); in eadem provincia, *Riedel*, n. 711, *Pohl*, n. 371, *Sello*, nn. 120, 122; in Brasilia australi locis exactis non datis, *Pohl*, n. 535, *Riedel*, n. 959, *Beyrich;* prov. Rio de Janeiro, *Brunet*, n. 24 (hb. U. S. Nat. Mus.), Tijuca, *Lund* (hb. Havn., fragm. in hb. Gray.), *Ule*, n. 3904 (hb. Berol.).

NOTA.— *A. polyphylla* (Sch. Bip.) Bak. ob foliis angustioribus subintegris separata videtur solum forma inconstans nullo modo subtiliter disjungenda.

7. A. MYRIADENIA (Sch. Bip.) Bak., suffruticosa erecta ascendente ramea; caule tereti brunneo glabrato folioso; ramulis brevissime griseopuberulis et cum glandulis subsessilibus conspersis; foliis rhomboideis oppositis vel ramealibus alternis graciliter petiolatis tenuibus acuminatis incise irregulariterque serratis basi cuneata subintegris juventate plus minusve pilosiusculis maturitate glabratis; capitulis in corymbis parvis subcongestis dispositis ca. 35-floris; involucri campanulati squamis subaequilongis obovati-oblongis herbaceis 4 mm. longis apice

rotundatis scarioso-marginatis ciliato-erosis dorso pilosiusculis; receptaculo conico paleaceo, paleis squamis involucri similibus angustioribus persistentibus; corollis 2.2 mm. longis tubo proprio ca. 0.3 mm. longo extus patentim hirtello, faucibus leviter ampliatis ca. 1.5 mm. longis glabris, limbi dentibus deltoideis vix 0.3 mm. longis patentibus; achaeniis subclavellati-prismaticis 2 mm. longis nigris glabris.—Bak. in Mart. Fl. Bras. vi. pt. 2, 192 (1876). *Piqueria myriadenia* Sch. Bip. ex Bak. l. c. (1876).— BRASILIA: prov. Minas Geraës, *Sello*, n. 119; Lagoa Santa, *Warming*, n. 402 (hb. Kew., phot. in hb. Gray.); Rio de Janeiro, *Glaziou*, n. 10,980 (hb. Berol., fragm. in hb. Gray.).

NOTA.— Forma corollae cum tubo proprio brevissimo hirtello et faucibus dentes limbi valde superantibus ut ab auctore observata cum descriptione cl. Bakeri male quadrat.

8. **A. longifolia** (Gardn.), comb. nov., fruticosa 1.8–2 m. alta; ramis glabriusculis teretibus striatis; foliis oppositis petiolatis oblongo-lanceolatis penninerviis serratis coriaceis basi acutis apice attenuatis 1–2 dm. longis 1–2 cm. latis glabris reticulato-venosis; capitulis 6–12-floris corymbosis; involucri squamis paucis (6–8) inaequalibus oblongis obtusis 2–3-seriatim imbricatis; receptaculo paleaceo, paleis linearibus apice plus minusve pilosis; corolla glabra; achaeniis prismaticis 5-angulatis glabris, pappo proprio nullo, annulo parvo vix angulato.— *Decachaeta longifolia* Gardn. in Hook. Lond. Jour. Bot. v, 462 (1846); Walp. Rep. vi. 705 (1847). *Ageratum longifolium* (Gardn.) Benth. in Benth. & Hook. f. Gen. ii. 242 (1873) ex Bak. in Mart. Fl. Bras. vi. pt. 2, 197 (1876). *Carelia longifolia* (Gardn.) Ktze. Rev. Gen. i. 325 (1891).— BRASILIA: prov. Minas Geraës in regione Adamantium locis calcareis, *Gardner*, n. 4863 (hb. Kew.).

9. **A. heterolepis** (Bak.), comb. nov., fruticosa; ramis virgatis foliosis apicem versus puberulis; foliis oppositis coriaceis lanceolatis ca. 1 dm. longis 2.2 cm. latis apice basique attenuatis utrinque reticulato-venosis supra viridibus glabriusculis subtus griseo-tomentellis; capitulis ca. 36-floris in corymbis congestis dispositis; involucri campanulati 5 mm. diametro squamis oblongis arcte appressis apice rotundatis dorso paullo carinatis ecostatis, interioribus subaequalibus extimis paucis gradatim brevioribus; receptaculo convexo usque ad mediam partem paleifero, paleis oblongis concavis obtusis; corollis 3.7 mm. longis glabris tubulosis, faucibus vix ampliatis; achaeniis 3 mm. longis glabris basi callosis; pappo proprio nullo.— *Ageratum heterolepis* Bak. in Mart. Fl. Bras. vi. pt. 2, 198 (1876).— BRASILIA: prov. Bahia, *Blanchet*, n. 3123 (hb. Berol., fragm. et phot. in hb. Gray.).

10. **A. microcephala** (Hemsl.), comb. nov., herba perennis; ramis virgatis teretibus glabris; foliis oppositis late lanceolatis vel ovato-lanceolatis serratis 3-nerviis 5–14 cm. longis 2–4 cm. latis firmiusculis apice basique acuminatis supra viridibus scabridis vel laevibus subtus pallidioribus cum glandulis minutis flavis densissime punctatis omnino epilosis; corymbis terminalibus multicapitulatis densis convexis; capitulis ca. 6 mm. diametro; involucri campanulati viridis squamis lanceolatis attenuatis saepissime 2-costatis glabriusculis vel parce glanduloso-atomiferis; paleis apice indurato-subulatis glabris; corollis glanduloso-atomiferis, tubo proprio fauces subaequante; achaeniis glabris acute 5-angulatis.— *Ageratum microcephalum* Hemsl. Biol. Cent.-Am. Bot. ii. 82, t. 43, ff. 1–5 (1881). *Carelia microcephala* (Hemsl.) Ktze. Rev. Gen. i. 325 (1891).— MEXICO: Oaxaca in agris et silvis, alt. 2135 m., *Galeotti*, n. 2098 (hb. Kew., phot. in hb. Gray.); prope Choapam, alt. 1170–1380 m., *E. W. Nelson*, n. 858 (hb. U. S. Nat. Mus., fragm. et icon. simplici in hb. Gray.).

11. **A. guatemalensis**, spec. nov., herbacea perennis erecta 3 dm. vel ultra alta; caulibus teretibus brunneo-pupureis gracilibus virgatis superne crispe griseo-puberulis basin versus glabratis; internodiis perlongis (7–13 cm.) folia superantibus; foliis oppositis lanceolato-linearibus remote serratis vel integriusculis 3-nerviis utrinque obscure et tenuissime pilosis subtus flavido-viridibus glanduloso-punctatis 5–8 cm. longis 4–7 mm. latis longe attenuatis basi acutis breviter petiolatis; corymbis terminalibus longipedunculatis; densis 10–20-capitulatis saepius subglobosis, pedicellis ca. 3 mm. longis tomentellis; capitulis 5 mm. altis 6 mm. diametro ca. 80-floris; involucri campanulati squamis subaequalibus oblongo- vel lineari-lanceolatis acutis ciliolatis dorso 2-costatis pilosiusculis; receptaculo conico ubique paleifero; paleis angustis apice subulato-acutis pallidis corollas subaequantibus; corollis 3.2 mm. longis glabris, tubo proprio fauces paullo vel modice ampliatas aequanti; achaeniis nigrescentibus glabris lucidis acute angularibus basi callosis apice cum annulo cartilagineo humillimo obscure angulato coronatis.— *Ageratum salicifolium* Coult. in J. D. Sm. Enum. Pl. Guat. iv. 72 (1895), non Hemsl.— GUATEMALA: Canchón, Depart. Santa Rosa, alt. 610 m., Oct. 1894, *Heyde & Lux*, n. 6153 a cl. J. D. Smithio distributa (hb. Gray., hb. U. S. Nat. Mus., hb. J. D. Sm.).

12. **A. platylepis**, spec. nov., verisimiliter herbacea perennis; caule tereti primo puberulo maturitate glabrato purpureo folioso; foliis majusculis oppositis breviter petiolatis ovato-lanceolatis caudato-attenuatis subremote serratis basi rotundatis vel acutatis utrinque

glabris viridibus subtus vix pallidioribus minute glanduloso-punctatis 7–10 cm. longis 2.5–3.8 cm. latis supra basin 3-nerviis; corymbis in ramis terminalibus densis pauci(5–8)-capitulatis longiuscule pedunculatis; bracteolis parce pubescentibus linearibus; pedicellis 3–5 mm. longis rectis; capitulis pro genere majusculis 7–9 mm. diametro; involucri turbinato-campanulati squamis ovati- vel obovati-oblongis planis ecostatis acutis erosis pallidis subaequalibus (extimis paucis multo angustioribus exceptis); receptaculo undique paleifero; paleis corollas subaequantibus apice subulatis pallidis induratis; corollis 2.2 mm. longis glabris limbum versus caeruleo-purpureis, tubo proprio faucibus paullo ampliatis longiore; achaeniis nigris glabris 5-angularibus saepe arcuatis basi callosis apice cum annulo parvo albido subintegro coronatis.— GUATEMALA: prope Nenton, alt. 900–1225 m., 13 Dec. 1895, *E. W. Nelson*, n. 3528 (hb. Gray., sub nomine *Isocarpha echioides* distributa).

13. **A. isocarphoides** (DC.), comb. nov., suffruticosa; caule tereti hispido-pubescenti usque ad inflorescentiam terminalem compositam foliato; foliis oppositis 3-nerviis lanceolatis integriusculis vel crenato-dentatis subsessilibus supra scabridis subtus velutino-villosis acuminatis basi cuneato-angustatis; inflorescentia oppositi-ramea; capitulis ca. 25-floris in corymbis densis dispositis.— *Coelestina isocarphoides* DC. Prod. v. 107 (1836), incl. *β dentata*. *Ageratum isocarphoides* (DC.) Hemsl. Biol. Cent.-Am. Bot. ii. 82 (1881). *Carelia isocarphodes* [DC.] Ktze. Rev. Gen. i. 325 (1891).— MEXICO, sine loci indicio accuratiori, *Haenke* (hb. DC., phot. in hb. Gray.); in cultis prope Orizabam, *Botteri & Sumicrast*, n. 524 (hb. Gray., immatura et dubitativa). Species minus cognita, an cum sequenti conjungenda?

14. **A. echioides** (Less.), comb. nov., herbacea perennis; radice fibrosa; caulibus solitariis vel paucis virgatis suberectis simplicibus vel rariter ramosis saepius ad mediam partem solum foliosis hirsuto-villosis; foliis lanceolati-oblongis 3-costatis serrato-dentatis vel saepius integriusculis basi cuneatis apice gradatim angustatis sed vix vero acutis 2.5–9 cm. longis 8–18 mm. latis utrinque villoso-hirsutis subtus paullo pallidioribus glanduloso-punctatis; corymbis terminalibus saepius densis rarius trichotomis et laxioribus; bracteis parvis linearibus; capitulis 7 mm. diametro ca. 50-floris; involucri campanulati squamis lanceolato-oblongis viridibus vel purpurascentibus ciliolatis saepius 2-costatis apicem versus subinduratis pallidioribus; receptaculo valde elevato subcylindrato-conico undique paleifero; corollis subcylindricis sparse pubescentibus 3 mm. longis caeruleo-purpureis, tubo proprio fauces vix ampliatas fere aequante; achaeniis nigris

argute 5-angulatis glabris lucidulis ca. 2 mm. longis.— *Isocarpha echioides* Less. Linnaea, v. 141, t. 2, ff. 14–16 (1830); DC. Prod. v. 107 (1836); Hemsl. Biol. Cent.-Am. Bot. ii. 167 (1881). *Ageratum echioides* (Less.) Hemsl. Biol. Cent.-Am. Bot. ii. 81 (1881). *Carelia echiodes* [Less.] Ktze. Rev. Gen. i. 325 (1891).— MEXICO: Vera Cruz, in graminosis prope Hacienda de la Laguna, *Schiede*, n. 304 (hb. Berol., icon. simplici et fragm. in hb. Gray.); prope Mirador, *Sartorius* (hb. Gray.), *Liebmann*, n. 143 (f. Hemsl. l. c.), n. 144 (hb. Havn.); *Linden* n. 1156 (f. Hemsl. l. c.); Jalapa, alt. 915 m., *Galeotti*, n. 2200; Orizaba, *Botteri*, n. 623 (hb. Gray.), *Müller*, n. 1129 (f. Hemsl. l. c.), *Bourgeau*, n. 2393 (hb. Gray.), *Sallé* (f. Hemsl. l. c.), *Thomas* (hb. Gray.); Escamella, *Bourgeau*, n. 3207 (hb. Gray.); Zacuapan, *Purpus*, n. 2199 (hb. Gray., hb. U. S. Nat. Mus.).

15. A. CINEREA (Gardn.) Benth., suffruticosa griseo-puberula; caulibus pluribus teretibus striatis glanduloso-tomentellis foliosis alterni-rameis apicem versus corymboso-ramosis; foliis alternis saepe fasciculatis patentibus linearibus 4–7.5 cm. longis 3–6 mm. latis obscure crenulatis apice rotundatis basi angustissimis sessilibus utrinque griseo-tomentellis; capitulis ca. 35-floris breviter pedicellatis modice numerosis; involucri campanulati 4 mm. diametri squamis subaequalibus anguste lanceolati-oblongis obtusis dorso glanduloso-puberulis apicem versus longius ciliatis; corollis roseis extus dense hirsutis ca. 2 mm. longis in fauces ampliatis; achaeniis prismaticis 5-angularibus nigrescentibus glabris calvis basi callo conspicuo munitis.— Benth. ex Bak. in Mart. Fl. Bras. vi. pt. 2, 191 (1876). *Piqueria cinerea* Gardn. in Hook. Lond. Jour. Bot. vi. 432 (1847).— BRASILIA: prov. Goyaz, in campis siccatis altis prope Villam de Arrayas, *Gardner*, n. 3810 (hb. Kew., phot. in hb. Gray.).

16. A. DUBIA Robinson, herbacea perennis glandulari-tomentosa 4–7 dm. alta; caudice erecto; caulibus teretibus striatulis foliosissimis usque ad inflorescentiam corymbosam simplicissimis; foliis (infimis caducis suboppositis exceptis) alternis oblanceolatis 2–3 cm. longis 5–9 mm. latis obtusis basin versus attenuatis vix petiolatis supra rugulosis subtus reticulatis utrinque sed praesertim in pagina inferiori glandulari-granulosis et sordide pubescentibus; capitulis ca. 1 cm. diametro 65-floris in corymbis laxis dispositis; involucri campanulati squamis sub-biserialibus herbaceis lanceolato-linearibus dorso dense glanduloso-pulverulis et apicem attenuatam versus plus minusve lanato-pilosis; corollis roseis 4 mm. longis tubo proprio gracili extus glanduloso-hirtello, faucibus turbinato-campanulatis, limbo purpurascenti-tomentello; achaeniis nigris 5-angularibus glabris basin

versus attenuatis apice annulo integerrimo cartilagineo coronatis.— BRASILIA: prov. Goyaz, *Glaziou*, n. 21,579 (hb. Berol., hb. Kew., fragm. in hb. Gray.).

17. A. AGERATOIDES HBK., herbacea perennis suberecta diffuse ramosa 3 dm. vel ultra alta; ramis oppositis teretiusculi-tetragonis primo obscure hirtellis, tardius glabratis foliatis saepissime brunnescentibus; foliis oppositis petiolatis ovatis acutis acute serratis vel subintegris 1.5–3.5 cm. longis 1–1.4 cm. latis trinerviis primo sparse hirtellis mox glabrescentibus subtus distincte pallidioribus; petiolis brevibus 2–4 mm. longis plus minusve pilosis ciliatisque; capitulis parvis ca. 6 mm. diametro ca. 25-floris laxe cymoso-paniculatis, ramulis paniculae sympodialibus scorpioideis, pedicellis filiformibus rectiusculis vel leviter arcuatis 1–3 cm. longis, bracteolis parvis 1–3 subulati-linearibus instructis; involucri campanulati squamis ca. 30 sub-biserialibus lanceolatis acutis saepissime 2-costatis; corollis purpureis 1.8 longis glabris vel glabriusculis, tubo proprio faucibus subcylindratis breviori; achaeniis glabris nitidis nigrescentibus acute 5-angulatis saepe leviter curvatis 1.5 mm. longis.— Nov. Gen. et Spec. iv. 152, t. 354 (1820); Hemsl. Biol. Cent.-Am. Bot. ii. 79 (1881); Hoffm. in Engl. & Prantl, Nat. Pflanzenf. iv. Ab. 5, 134, f. 78 A (1890). *Ethulia ageratoides* (HBK.) Spreng. Syst. iii. 458 (1826). *Phalacraea Lindenii* Sch. Bip. ex Benth. & Hook. f. Gen. ii. 240 (1873).— MEXICO: Guerrero prope Mescala, *Humboldt & Bonpland*, n. 3949 (hb. Par., phot. in hb. Gray.); Puebla ad Matlala, *Liebmann*, n. 84 (hb. Havn., hb. Gray.); Hidalgo ad Cazadera, *Liebmann*, n. 82 (hb. Havn., fragm. in hb. Gray.), sine loco indicato, *Liebmann*, n. 83 (hb. Havn., fragm. in hb. Gray.). Duo ultima sunt forma dubia inflorescentiis densioribus et ut apud *Ageratum littorale* vel *A. maritimum* longe pedunculatis.

18. A. ANGUSTATA (Gardn.) Benth., annua erecta pauciramea 4–6 dm. alta; radice fibrosa; caule tereti striato cum pilis glanduloso-viscosis instructo; foliis plerisque alternis longe graciliterque petiolatis ovato-deltoideis vel rhomboideis grosse inaequaliterque dentatis vel lobatis utrinque pilosis 3-nerviis 6–7.5 cm. longis basi subtruncatis, dentibus sinubusque obtusis, illis mucronulatis; petiolis et pedunculis viscoso-pilosis; capitulis 12–15-floris ad apices ramorum in corymbulis irregulariter dichotomis dispositis; involucri squamis ca. 12 glanduloso-pilosis herbaceis acuminatis 3-nerviis 5 mm. longis sub-biseriatis ciliatis; corollae tubo proprio glandulari-puberulo, faucibus modice ampliatis; achaeniis prismaticis nigris calvis.— Benth. ex Bak. in Mart. Fl. Bras. vi. pt. 2, 190 (1876). *Piqueria angustata* Gardn. in Hook. Lond. Jour. Bot. vi. 432 (1847).— BRASILIA: prov. Goyaz, in

locis saxosis silvarum umbrosarum, prope Villam de Arrayas, *Gardner*, n. 3809 (hb. Kew., phot. in hb. Gray.); prov. Minas Geraës, ad Lagoa Santa, *Warming* f. Bak. l. c.

Nota.— Folia usque adhuc ab auctore observata leviter vel modice dentato-lobata sunt sed numquam profunde pinnatifida ut a cl. Bakero, l. c., descripta. Specimen typicum est Gardneri n. 3809 nec ut in Fl. Bras. 3089 datum.

19. **A. Wendlandii** (Sch. Bip.), comb. nov., perennis 3 dm. vel ultra altitudine; caule tereti viridi striatulo pubescenti; internodiis paucis elongatis ca. 1 dm. longitudine; foliis oppositis ovatis tenuibus argute serratis ca. 6 cm. longis ca. 4 cm. latis apice acuminatis basi obtusiusculis supra tenuiter pubescentibus subtus paullo pallidioribus molliter griseo- vel cinereo-tomentosis; petiolo gracili 1–2.8 cm. longo dense pubescenti; corymbis longiuscule pedunculatis trichotomis planiusculis densis multicapitulatis ca. 5 cm. diametro; bracteis filiformibus; pedicellis filiformibus 2–8 mm. longis; capitulis erectis 60–70-floris 6–6.5 mm. altis 6 mm. diametro; involucri ovoideo-turbinati squamis oblanceolatis attenuatis sub-biseriatim imbricatis subaequalibus saepius 2-costatis dorso griseo-puberulis et cum glandulis minutis obscure nigro-punctatis; corollis saltim limbum versus caeruleis 2.7 mm. longis, tubo proprio glanduloso-hispidulo, faucibus subaequilongis parce glanduloso-atomiferis; achaeniis nigrescentibus acute 5-angulatis 1.6 mm. longis saepius curvatis apice cum annulo integro cartilagineo coronatis basi callosis.— *Phalacraea Wendlandii* Sch. Bip. ex Klatt, Leopoldina, xx. 74 (1884), in synon. et sine char. ?*Ageratum Wendlandii* Hort. ex Vilm.Fl. de pl. terre, Suppl. 2 (1884).— MEXICO: ad "Gualulu" verisimiliter lapsu pennae pro Guatulco (seu Huatulco) in civitate Oaxaca, *Liebmann*, n. 147 (hb. Havn., fragm. in hb. Gray.); Etzatlan in civitate Jalisco, *Pringle*, n. 11,819 (hb. Gray.).

Nota.— *Ageratum Wendlandii* Hort. huc dubitanter locatum variat flosculis albis f. Vilm. l. c.

20. **A. microcarpa** (Benth.), comb. nov., herbacea annua erecta vel decumbens undique molliter pilosa 3–6 dm. alta; radice fibrosa; caulibus teretibus saepius flexuosis medullosis usque ad inflorescentiam foliatis viridibus vel purpureis; foliis oppositis petiolatis deltoideo-ovatis saepius cordatis vel subcordatis 3–6 cm. longis 2–4 cm. latis crenato-serratis obtusis vel vix acutiusculis membranaceis subconcoloribus utrinque pilosis; petiolo 8–18 mm. longo saepius hirsuto; corymbis terminalibus et ex axillis superioribus oriuntibus densis multicapitulatis; capitulis ca. 60-floris; involucri campanulati squamis anguste lanceolatis saepius 2-costatis attenuatis viridibus plus

minusve pilosis; corollis limbum versus caeruleo-purpureis, tubo proprio gracili glanduloso-atomifero fauces cylindratas glabras distincte ampliatas fere aequanti; achaeniis nigris glabris argute 5-angulatis prismaticis 1.1 mm. longis.— *Coelestina microcarpa* Benth. ex Oerst. Vidensk. Meddel. 1852, p. 72 (1852). *Ageratum microcarpum* (Benth.) Hemsl. Biol. Cent.-Am. Bot. ii. 82 (1881).— COSTA RICA: in graminosis, etc., Cartago, *Oersted*, nn. 241, 247, 248 (omnia in hb. Kew., phot. in hb. Gray.); in pascuis ad Général, *Pittier*, n. 3415 (hb. Gray.); Turrialba in pascuis, alt. 1200 m., *Pittier*, n. 4139 (hb. Gray.); Aguacaliente secundum viam ferriam, alt. 1300 m., *Pittier*, n. 2390 (hb. Gray., hb. J. D. Sm.); Poaz, alt. 2200 m., *Tonduz*, n. 10,816 (hb. Gray.); in sepis secundum vias, San José, *Tonduz*, n. 7281 (hb. Gray., hb. J. D. Sm.); in terris cultis et incultis, San José, alt. 1135 m., *Pittier*, n. 3533 (hb. Gray., hb. U. S. Nat. Mus., hb. J. D. Sm.); in pascuis, San Francisco de Guadeloupe, alt. 1170 m., *Tonduz*, n. 8479 (hb. U. S. Nat. Mus., hb. J. D. Sm.); in agro ad Juan Viñas, alt. 1000 m., *Cook & Doyle*, n. 277 (hb. U. S. Nat. Mus.). VENEZUELA: ad Caracas, *Linden*, n. 349 (hb. Kew.), forma dubia parvifolia.

Subg. 3. **Lycapsus** (Phil.), subg. nov. Involucri squamae 6–8 subuniseriales subaequales angustae herbaceae enerviae. Receptaculum paleaceum. Corollae fauces distincte ampliatae. Styli rami pro tribu breviusculi valde spiraliter recurvati.— *Lycapsus* Phil. Bot. Zeit. xxviii. 499, t. 8A (1870).— Frutex xerophyticus. Folia alterna pinnatipartita. Species 1 chilensis.

21. A. TENUIFOLIA (Phil.) Benth. & Hook. f., fruticosa ramosa glaberrima; foliis alternis crassiusculis pinnatipartitis, rhachi laciniisque filiformibus; petiolo ca. 17 mm. longo rhachin subaequanti, laciniis utrinque 3–4 oppositis vel alternis usque ad 9 mm. longis 1.3 mm. crassis; capitulis corymbosis pedicellatis; bracteolis 1–2 linearisetaceis 3–4 mm. longis; involucri hemisphaerici squamis 3 mm. longis lanceolati-linearibus herbaceis subaequalibus vix imbricatis corollas aequantibus; corollis verisimiliter albis; tubo proprio glandulariatomifero fauces glabras cylindratas aequanti; limbi dentibus 5 patentim recurvatis; achaeniis 2 mm. longis granulosis deorsum decrescentibus.— Benth. & Hook. f. Gen. ii. 240 (1873), sine combinatione definitiva sed ex Reicheo, Fl. de Chil. iii. 260 (1901).— CHILI: in insula San Ambrosio.

NOTA.— Haec planta minime cognita a navarcho innominato navis bellicae chilensis in petaso suo collecta fide cl. Philippii (l. c. 501) in insula San Ambrosio inveniebatur, nec ut dicit cl. Reiche (l. c.) in insula San Felix.

Species reducta vel exclusa.

A. Armani (Balbis) Bak. in Mart. Fl. Bras. vi. pt. 2, 191 (1876). *Eupatorium Armani* Balbis, Pl. Rar. Hort. Turin, 1810, p. 27, t. 6 (1810). *Orsinia Eupatoria* DC. Prod. v. 104 (1836). *Piqueria Eupatorium* (DC.) Gardn. in Hook. Lond. Jour. Bot. vi. 430 (1847). *Clibadium rotundifolium* DC. Prod. v. 505 (1836); Bak. l. c. vi. pt. 3, 152 (1884), ubi syn. alia. = CLIBADIUM ARMANI (Balbis) Sch. Bip. ex Bak. l. c. (1884).

A. polyphylla (Sch. Bip.) Bak. = A. FASTIGIATA (Gardn.) Benth.

A. spilanthoides D. Don ex Hook. & Arn. Comp. Bot. Mag. i. 238 (1835) = GYMNOCORONIS SPILANTHOIDES (D. Don) DC. Prod. vii. 266 (1838).

2. REVISION OF THE GENUS AGERATUM.

The genus *Ageratum* L. has not been subjected to any general revision since its treatment in DeCandolle's Prodromus in 1836. For many years it has been made to include plants of a considerable range of habit and, what is more noteworthy, though chiefly defined by its pappus, has been allowed to contain species of widely divergent character in just this matter. While the more typical species have a pappus of five distinct scales, others have a cup-like crown of very short and connate scales; still others have been admitted into the genus which instead of scales of definite number have short or long, slender or slightly thickened, smooth or plumose bristles of indefinite number ranging from 8 to 20 or more. Finally certain species have been included from similarity of habit which possess no true pappus whatever but merely a sort of annulus beneath rather than exterior to the corolla.

To render the genus properly natural and compact, as well as to permit its more precise definition, it seems best to refer to *Alomia* the species destitute of pappus, and to exclude also those species which have a bristle pappus. The latter group consists of six South American species, namely *A. Agrianthus* Hoffm. (*Agrianthus corymbosus* DC.), *A. alternifolium* (Gardn.) Bak., *A. campuloclinioides* Bak., *A. confertum* (Gardn.) Benth., *A. melissaefolium* DC., and *A. Pohlianum* Bak. At first, it seemed likely that these species could be appropriately separated as a distinct genus. Schultz-Bipontinus seems to have planned such a segregation in his undescribed *Melissopsis*. The species, however, differ much among themselves, both as to habit

and technical characters, and several are scarcely to be separated from *Trichogonia* except by their slightly shorter and thicker pappus-bristles. Their satisfactory generic disposition must await further study, for which there is no adequate material as yet available in the North American herbaria.

The other two elements traditionally included in *Ageratum*, namely, the true Ageratums with pappus of distinct scales, and *Coelestina* Cass. with cuplike or crownlike pappus, are groups of very close affinity, by no means sharply separable. It is believed that they are best treated merely as sections of the genus *Ageratum*.

The writer has not had many opportunities to follow up the various forms of *Ageratum* which have received horticultural names. So far as seen these have proved merely cultural improvements of the common annuals, *A. conyzoides* L. and especially *A. Houstonianum* Mill. *A. rubens* Viviani, early described from cultivated material, has never been recognized. *A. Lasseauxii* Carr., to judge from a supposably authentic specimen in the Gray Herbarium, is clearly a species of *Eupatorium*. *A. conspicuum* Hort. is generally believed to have been *Eupatorium glechonophyllum* Less. *Ageratum Wendlandii* of Vilmorin's Fleurs de pleine terre, Suppl. 2 (1884), with uncharacteristic figure and mere horticultural description, was presumably founded on the same plant as the one to which Schultz-Bipontinus applied the manuscript name *Phalacraea Wendlandii*, later published in synonymy by Klatt. If this is the case Vilmorin's plant was the one described elsewhere in this paper as *Alomia Wendlandii* and came from the uplands of southern central Mexico. It would seem probable that both *Ageratum* and *Alomia* would repay further horticultural attention, there being several other species quite as promising as those already brought into cultivation.

AGERATUM L. (Nomen ab antiquis et graece et latinice ad plantam aliquem non viescentem non certe cognitam fortasse ut dicitur *Achilleam* applicatum.)— Capitula homogama tubuliflora. Involucrum plerumque campanulatum rariter turbinato-subcylindratum vel hemisphaericum, squamis angustis longitudine subaequalibus 2–3-seriatim imbricatis (cum vel absque squamulis 1–3 extimis multo brevioribus) plerisque lanceolato-linearibus acutis vel attenuatis saepius 2(1–4)-costatis. Receptaculum planum vel convexum vel conicum nudum vel paleiferum. Corolla 5-dentata limbum versus saepius caerulea vel purpurea vel alba rarius rosea, tubo proprio superne sensim in fauces subcylindratas plus minusve ampliato.

Antherae oblongae vel lineares apice cum appendicem membranaceam ovatam vel oblongam munitae basi rotundatae. Achaenia 5-angulata prismatica vel deorsum paullo decrescentia. Pappus e squamis apice setiferis vel muticis distinctis vel basi connatis vel in coronam crateriformem integram vel dentatam compositus.— Sp. Pl. ii. 839 (1753); DC. Prod. v. 108 (1836); Benth. & Hook. f. Gen. ii. 241 (1873), excl. syn. *Decachaeta* et *Oxylobus;* Bak. in Mart. Fl. Bras. vi. pt. 2, 193 (1876), pro parte; Hemsl. Biol. Cent.-Am. Bot. ii. 80 (1881), pro parte majori; Gray, Syn. Fl. i. pt. 2, 93 (1884); Hoffm. in Engl. & Prantl. Nat. Pflanzenf. iv. Ab. 5, 137 (1890), excl. syn. *Oxylobus;* Dalla Torre & Harms, Gen. Siph. 527 (1905), excl. syn. *Oxylobus, Melissopsis, Decachaeta. Carelia* Adans. Fam. ii. 123 (1763); Ktze. Rev. Gen. i. 325 (1891). *Coelestina* Cass. Bull. Soc. Philom. Par. 1817, p. 10 (1817); DC. Prod. v. 107 (1836), partim. *Caelestina* Cass. Dict. Sci. Nat. vi. suppl. 8, t. 93 (1817).— Herbae annuae vel perennes vel suffrutices vel frutices. Folia saepius opposita rariter alterna saepissime ovata vel lanceolata crenata vel serrata rariter integra sessilia vel petiolata saepe glandulari-punctata. Inflorescentia plerumque terminalis corymbosa vel cymosa saepius composita.

Genus extraneis expurgatis e speciebus 27 sistens quarum 19 regionem mexicano-centrali-americanam incolunt, aliae inter Floridam australem et insulas Indiae Occidentalis et Americam Australem calidiorem distributae, una africana, una in terris calidioribus latissime dispersa.

Sect. I. EUAGERATUM DC. Pappi squamae omnino distinctae vel imo paullulo connatae nunc longae et apice setiferae corollam subaequantes nunc mutices corolla multo breviores rariter (apud *A. maritimi* et *A. littoralis* formas nonnullas) omnino desunt.— Prod. v. 108 (1836). *Ageratum verum* Bak. in Mart. Fl. Bras. vi. pt. 2, 194 (1876), pro parte.— Species 13 pleraeque herbaceae saepius annuae.

Clavis specierum.

a. Caulis procumbens vel prostratus repens *b.*
  b. Folia parva suborbicularia profunde crenata. Capitula solitaria 1. *A. domingense.*
  b. Folia majora lanceolata subintegra. Capitula cymosa 2. *A. radicans.*
a. Caulis erectus vel plus minusve decumbens *c.*
  c. Folia sessilia integra *d.*
    d. Folia subtus griseo-incana. Afr.....3. *A. polyphyllum.*
    d. Folia subtus glabra viridia. Am. Cent.....4. *A. Peckii.*
  c. Folia petiolata crenata vel dentata *e.*
    e. Pappi paleae omnes vel nonnullae apice setiferae corollam aequantes *f.*

f. Capitula subcongestim cymoso-corymbosa *g.*
g. Decumbens superne nudum. Sp. maritima
13. *A. littorale*, f. *setigerum.*
g. Erectum vel suberectum saepius usque ad inflorescentiam foliosum *h.*
h. Annuum. Pars pappi palearum squamiforme dilatata setam fere aequans *i.*
i. Involucri squamae lanceolato-lineares integrae ciliolatae longe in apicem peracutam attenuatae saepius coloratae dorso hirsutae.....5. *A. Houstonianum.*
i. Involucri squamae oblongae subabrupte acuminatae ciliatae saepius margine plus minusve dentatae vel erosae dorso parce pubescentes vel glabriusculae
6. *A. conyzoides.*
h. Suffruticosum. Pars pappi palearum squamiforme dilatata quam seta triplo brevior.....7. *A. suffruticosum.*
f. Inflorescentia laxa; capitulis omnibus longiuscule (1–4 cm.) pedicellatis.....8. *A. Gaumeri.*
e. Pappi paleae omnes muticae corollae tertiam partem longitudine vix aequantes *j.*
j. Erectum vel suberectum. Folia 2–8 cm. longa. Sp. non maritimae *k.*
k. Perenne. Folia serrata longe attenuata acuta. Guatemala
9. *A. rugosum.*
k. Perenne. Folia crenata obtusa vel obtuse acuminata. Petiolo obcompressi late planiusculi. Caulis paullo lignescens. Involucrum basi saepius umbonatum. Mex.
10. *A. platypodum.*
k. Annuum omnino herbaceum. Petioli subteretes. Involucrum basi plus minusve acutatum.....11. *A. latifolium.*
j. Decumbens. Folia 1–1.8 cm. longa. Sp. maritimae *l.*
l. Caulis usque supra mediam partem foliosus. Folia ovato-oblonga vel anguste deltoidea regulariter crenata. Corymbi 3–5-capitulati.....12. *A. maritimum.*
l. Caulis vix ad mediam partem foliosus. Folia rhomboideo-ovata vel infimis breviter lateque deltoidea. saepissime inciso-dentata. Corymbi 4–13-capitulati
13. *A. littorale.*

1. A. DOMINGENSE Spreng., herbaceum pusillum prostratum reptans; caule gracili ad nodos radicantes folia et ramos suberectos basi foliatos apice floriferos et etiam scapos nudos unicapitatos gerenti; foliis oppositis suborbicularibus 6–12 mm. diametro tenuibus grosse crenato-lobulatis cordatis, petiolis 3–16 mm. longis; capitulis solitariis terminalibus 5–8 mm. diametro; involucri turbinati squamis viridibus tenuibus vix costatis oblanceolatis acutis laxe imbricatis subaequilongis dorso laxe pilosis; pedunculis vel scapis flexuosis saepe nutantibus 3–7.5 cm. longis; corollis albis 2 mm. longis glanduloso-atomiferis, tubo proprio gracili faucibus campanulatis brevioribus; achaeniis glabris nigris lucidis deorsum decrescentibus basi substipitati-callosis; pappi squamulis oblongis fimbriatis quam achaenio bis brevioribus.— Syst. iii. 446 (1826). *Phania domingensis*

(Spreng.) Griseb. Cat. Pl. Cub. 145 (1866). *Carelia domingensis* (Spreng.) Ktze. Rev. Gen. i. 325 (1891). *Eupatorium planellasianum* Maza & Molt. An. Hist. Nat. Madr. xix. 271 (1890).— SANTA DOMINGO: *Bertero* (hb. DC., icon. simpl. in hb. Gray.). CUBA: in ripis fluminis Sta. Catalina, *Wright*, n. 2798 (hb. Gray.); in saxis prope San Diego de Tapia, *Wright* (hb. Gray.); sub fruticibus in collibus petrosis Bahia Honda, prov. Pinar del Rio, *Wilson*, n. 9405 (hb. Gray.).

NOTA.— Quamquam planta domingensis a cl. Sprengel glabra descripta sit ea cubensis tamen distincte pubescens se exhibet.

2. A. RADICANS Robinson, herbaceum glabrum prostratum reptans; caule tereti crassiusculo medulloso; ramis patentibus ad nodos saepe radicantibus apicem versus ascendentibus; foliis oppositis lanceolatis vel anguste elliptico-oblongis 3-nerviis integriusculis utroque angustatis apice obtusis utrinque glabris supra viridibus subtus vix pallidioribus impunctatis 4–8 cm. longis 5–15 mm. latis breviter petiolatis; pedunculis nudis cymos parvos 2–3-capitulatos terminales vel etiam laterales gerentibus; capitulis breviter pedicellatis 8–10 mm. diametro; involucri squamis lanceolatis vel linearibus fere a basi ad apicem attenuatis 2-costatis peracutis glabris; receptaculo parvo convexo nudo; corollis glabris limbum versus purpureis; achaeniis acute 5-angularibus 1.2 mm. longis glabris; pappi paleis 5 ovatis scariosis apice in setam productis corollam aequantibus.— Proc. Am. Acad. xlvii. 192 (1911).— BALIZE: in aquis dulcis prope Manatee Lagoon, *Peck*, n. 99 (hb. Gray.).

3. A. POLYPHYLLUM Bak., herbaceum perenne foliosissimum; caulibus erectis simplicibus pubescentibus; foliis sessilibus oppositis lanceolatis integris 1–2.5 cm. longis margine revolutis supra glabris viridibus subtus griseo-incanis tomentosis; corymbis densis; capitulis ca. 5 mm. diametro multifloris; involucri campanulati squamis lanceolatis pauciseriatim imbricatis extimis gradatim brevioribus; corollis rubris tubo proprio pubescenti; achaeniis glabris; pappi paleis paucis obtusis quam corolla triplo brevioribus.— Kew Bull. 1898, p. 148 (1898).— AFRICA CENTRALIS ANGLICA: ad Nyikam, alt. 1800–2150 m., *Whyte*, n. 252. Non vidi.

4. A. PECKII Robinson, herbaceum annuum erectum 5 dm. altum fastigiatim ramosum glabrum; radice fibrosa; caule subtereti basin versus crassiusculo nodoso; foliis lineari-oblongis integris 3-nerviis 2.5–4.5 cm. longis 2.5–6 mm. latis acutiusculis sed in apice vero obtusis basi petioliforme attenuatis margine revolutis; capitulis paucis

3.5–4 mm. diametro ca. 20-floris in cymis dichotomis dispositis; bracteolis lineari-subulatis 2–4 mm. longis; involucri squamis linearilanceolatis attenuatis saepius 2-costatis acutissimis longitudine subaequalibus glabris; corollis glabris caeruleo-purpureis; achaeniis nigris 5-angularibus in angulis parce hispidulis in faciebus obscure granulosis; pappi paleis ovatis scariosis argenteis plus minusve laciniatis apice setiferis corollam aequantibus.— Proc. Am. Acad. xlvii. 191 (1911).— BALIZE: in apertis arenosis in collibus piniferis prope Manatee Lagoon, *Peck*, n. 80 (hb. Gray.).

5. A. HOUSTONIANUM Mill., annuum robustum erectum vel decumbens; caule tereti medulloso per totam longitudinem folioso patentim piloso plus minusve ramosum; foliis oppositis late deltoideo-ovatis saepius crenatis hinc inde (in eodem individuo) acute serratis basi saepissime late cordatis rarius truncatis vel paullo acutatis apice saepius obtuse acuminatis 3.5–12 cm. longis 1.5–9 cm. latis tenuibus utrinque viridibus hirsutis subtus paullo pallidioribus impunctatis; corymbis terminalibus saepe compositis densis valde convexis multicapitulatis glanduloso-hirtellis et cum pilis moniliformibus albis longius hirsutis; capitulis ca. 8 mm. diametro ca. 75-floris; involucri squamis anguste lanceolatis vel lanceolato-linearibus integris herbaceis longe continenterque attenuatis acutissimis ciliolatis apicem versus saepius purpureis dorso 2-costatis glandulari-puberulis et conspicue hirsutulis; corollis gracillimis ca. 3 mm. longis limbum versus caeruleis, tubo proprio parce glandulari-puberulo fauces cylindratas glabriusculas aequanti vel paullo superanti, limbi dentibus extus hispidulis; achaeniis nigris nitidis saepius in angulis et etiam plus minusve in faciebus sursum hispidulis ca. 1.2 mm. longis; pappi paleis 5 lanceolatis margine fimbriatis apice longe setiferis, setis sursum scabridis corollas subaequantibus.— Dict. ed. 8, n. 2 (1768). *A. mexicanum* Sims, Bot. Mag. t. 2524 (1825); Sweet, Brit. Fl. Gard. t. 89 (1825), a copia eadem ac ea Simsii descripta, pappi squamulis a cl. Sweetio per errorem nimium brevioribus depictis; Hemsl. Biol. Cent.-Am. Bot. ii. 82 (1881), pro parte. *A. conyzoides*, var. *mexicanum* (Sims) DC. Prod. v. 108 (1836). *A. conyzoides* Hemsl. l. c. 81 (1881), pro parte, non L. *Carelia Houstoniana* (Mill.) Ktze. Rev. Gen. i. 325 (1891).— MEXICO: praesertim in civitate Vera Cruz: Cordova, *Bourgeau*, n. 1557 (hb. Gray., hb. U. S. Nat. Mus.); Orizaba, alt. 1220 m., *Seaton*, n. 55 (hb. Gray., hb. U. S. Nat. Mus., hb. J. D. Sm.); Jalapa, *Schiede*, f. Hemsl. l. c., alt. 1220 m., *Pringle*, no. 8065 (hb. Gray., hb. U. S. Nat. Mus., hb. J. D. Sm.); Fortin, *Kerber*, n. 302 (hb. Havn.); Mirador, *Sartorius* (hb. Gray.); Coatzacoalcos, *C. L. Smith*, n. 145 (hb. Gray.), n. 979

(hb. U. S. Nat. Mus.); Huasteca, Tantoyuca, *Ervendberg*, n. 100 (hb. Gray.); Tepic, *Palmer* (anno 1892), n. 2066 (hb. U. S. Nat. Mus.). COSTA RICA: San Rafael de Cartago, *Pittier*, n. 6995 (hb. Gray.). GUATEMALA: Alta Vera Paz, *Goll*, n. 238 (hb. U. S. Nat. Mus.). CUBA: in agro nicotianae, Pinar del Rio, *Palmer & Riley*, n. 65 (hb. U. S. Nat. Mus.), fl. roseis. JAMAICA: *Eggers*, n. 3445 (hb. J. D. Sm.); Cinchona, alt. 1525 m., *Clute*, n. 190 (hb. U. S. Nat. Mus.); in marginibus silvarum, Morce's Gap, alt. 1525 m., *Nichols*, n. 33 (hb. Gray., hb. U. S. Nat. Mus.). MARTINIQUE: cultum et erratum, *Duss*, n. 4681 (hb. U. S. Nat. Mus.), partim. BRASILIA: Rio de Janeiro, *Rudio* (hb. Gray., hb. U. S. Nat. Mus.). ST. HELENA: *Brown & Brown*, n. 254 (hb. U. S. Nat. Mus.). ASSAM: Mangaldai, *Chatterjee* (U. S. Nat. Mus.).

NOMEN VULGATUM hispanice (Mex.) "Yerba de zopilote" ex cl. Kerbero.
NOTA.— Haec species pro genere optima, origine certe austro-mexicana est diu ob floribus laete caeruleis vel albis perornatis ubique culta et aliter ex hortis errata vel fortuite dispersa saepe in locis incultis vel ruderatis reparatur.

6. A. CONYZOIDES L., annuum pubescens oppositi-rameum normaliter erectum rarius decumbens 2.5–9 dm. altum; radice fibrosa; caule molli tereti patentim pubescenti saepius purpurascenti per totam longitudinem folioso; ramis patentim ascendentibus; foliis ovatis plerisque obtusis basi rotundatis vel breviter cuneatis rarius late cordatis crenatis vel rarius serratis tenuibus utrinque parce pilosis subtus dilutiore viridibus 2–8 cm. longis 1.5–6 cm. latis a basi 3(–5)-nerviis impunctatis vel subtus glandulis paucis inconspicuis conspersis; petiolis 0.5–3 cm. longis hirsutis; corymbis in caule ramisque terminalibus saepe compositis (3–)8–40-capitulatis valde convexis breviter pedunculatis; pedicellis filiformibus 3–7 mm. longis glandulosis vel hispidulis; bracteolis setaceis; capitulis 50-floris ca. 6 mm. diametro; involucri campanulati squamis oblongis viridibus saepius 2-costatis apice subabrupte acuminatis margine scariosis sub acumine saepius erosis et ciliatis dorso parce pilosis vel glabriusculis; receptaculo nudo; corollis limbum versus caeruleis ca. 2 mm. longis, tubo proprio gracili fauces modice ampliatas paullo superanti glabriusculo vel glandulari-puberulo; achaeniis nigris nitidis in angulis saepius minute sursum hispidulis; pappi paleis 5 lanceolatis margine fimbriolatis apice setiferis corollam subaequantibus.— Sp. Pl. ii. 839 (1753). *A. hirtum* Lam. Dict. i. 54 (1783). *A. conyzoides, β hirtum* (Lam.) DC. Prod. v. 108 (1836). *A. hirsutum* Poir. Suppl. i. 242 (1810), sphalm. pro *hirtum*. *A. odoratum* Vilm. Fl. Pl. Terre, ed. 2, 42 (1866).

Cacalia mentrasto Vell. Fl. Flum. 339 (1825), viii. t. 69 (1827). *Carelia conyzodes* [L.] Ktze. Rev. Gen. i. 325 (1891), cum varietatibus vegetivis *robusta, umbrosa, pusilla, coerulea.*— MEXICO: Tepic, *Palmer* (anno 1892), n. 1850 (hb. Gray., hb. U. S. Nat. Mus.), n. 1890 (hb. Gray.). GUATEMALA: *Heyde*, n. 530 (hb. U. S. Nat. Mus.); Santa Rosa, alt. 915 m., *Heyde & Lux* (distrib. J. D. Sm.), n. 3781 (hb. Gray., hb. U. S. Nat. Mus., hb. J. D. Sm.); Coban, alt. 1310 m., *v. Tuerckheim* (distrib. J. D. Sm.), n. 488 (hb. Gray., hb. U. S. Nat. Mus., hb. J. D. Sm.), alt. 1350 m., *v. Tuerckheim*, n. II 999 (hb. U. S. Nat. Mus.); Gualan, *Deam*, n. 330 (hb. Gray., hb. U. S. Nat. Mus.); Alta Vera Paz, *Cook & Griggs*, n. 560 (hb. U. S. Nat. Mus.); prope Nenton, alt. 915–1220 m., *Nelson*, n. 3542 (hb. J. D. Sm.); in agris gossypii vulg., prope Mazatenango, alt. 350 m., *Maxon & Hay*, n. 3487 (hb. U. S. Nat. Mus.); El Paxte, in monte igniv. Ipala, alt. 1000 m., *Pittier*, n. 1891 (hb. U. S. Nat. Mus.); Las Animas, alt. 200 m., *Shannon* (distrib. J. D. Sm.), n. 600 (hb. J. D. Sm.). HONDURAS: Rio Permejo, alt. 180 m., *Thieme* (distrib. J. D. Sm.), n. 5323 pro parte (hb. J. D. Sm.). COSTA RICA: Cartago, alt. 1300 m., "Santa Lucia incolarum," *Cooper* (distrib. J. D. Sm.), n. 5824 (hb. J. D. Sm.). NICARAGUA: Chinandega, *Baker*, n. 2021 (hb. Gray., hb. U. S. Nat. Mus.). SALVADOR: *Renson*, n. 190 (hb. U. S. Nat. Mus.). CUBA: prope villam Monte Verde dictam, *Wright*, 1310 (hb. Gray., hb. U. S. Nat. Mus., hb. J. D. Sm.); in ripis, Cienfuegos, *Combs*, n. 59 (hb. Gray.). INSULA PINORUM: in silvis pinorum, *Palmer & Riley*, n. 1068 (hb. U. S. Nat. Mus.). PORTO RICO: *Sintenis*, nn. 59 (hb. U. S. Nat. Mus., hb. J. D. Sm.), 3661 (hb. J. D. Sm.), 5816 (hb. J. D. Sm.); *Heller*, nn. 542 (hb. U. S. Nat. Mus.), 6143 (hb. Gray., hb. U. S. Nat. Mus.); *Britton & Cowell*, n. 927 (hb. U. S. Nat. Mus.); *Underwood & Griggs*, nn. 871, 872 (hb. U. S. Nat. Mus.). ST. THOMAS: *Eggers*, n. 303 (hb. Gray., hb. J. D. Sm.). ST. CROIX: *Ricksecker*, nn. 430 (hb. Gray., hb. U. S. Nat. Mus.), 250 (hb. U. S. Nat. Mus.). MONTSERRAT: *Shafer*, n. 207 (hb. U. S. Nat. Mus.). GUADELOUPE: *Duss*, n. 2520 (hb. U. S. Nat. Mus.). MARTINIQUE: *Duss*, nn. 934, 4681 partim (hb. U. S. Nat. Mus.); *Hahn*, n. 1190 (hb. Gray., hb. U. S. Nat. Mus.). ST. VINCENTS: *H. H. & G. W. Smith*, n. 543 (hb. Gray.). GRENADA: *Broadway* (hb. Gray., hb. U. S. Nat. Mus.). BARBADOS: n. 124 legulo innom. (hb. Gray., hb. U. S. Nat. Mus.). COLUMBIA: Santa Marta, alt. 305 m., *H. H. Smith*, n. 523 (hb. Gray., hb. U. S. Nat. Mus.). VENEZUELA: prope Tovar, alt. 1980 m., *Fendler*, n. 652 (hb. Gray.). GUIANA ANGLICA: in terris litoreis, *Jenman*, n. 5398 (hb. J. D. Sm.). BOLIVIA: Mapiri, alt. 1525 m., *Rusby*, nn. 1642 (hb. U. S. Nat. Mus.), 1643 (hb. Gray.,

hb. J. D. Sm.), *Buchtien*, n. 1456 (hb. Gray.); Yungas, *Bang*, n. 407 (hb. U. S. Nat. Mus.). BRASILIA: in pascuis ruderatisque prope Rio de Janeiro, *Beyrich* (hb. Gray.); *Rudio* (hb. Gray., hb. Berol.); Petropolis, *Binot*, n. 15 (hb. Berol.); ex umbrosis juxta Tijuca, *Ball* (hb. U. S. Nat. Mus.); juxta Santos, *Ball* (hb. Gray.); Minas Geraës, *Regnell*, n. III 675 (hb. J. D. Sm.); Saõ Paulo, *Everett*, n. 16 (hb. Gray.); sine loco indicato, *Martius*, n. 672 (hb. Gray.), *Burchell*, n. 854 (hb. Gray.), *Luschnath* (hb. Gray.), *Riedel*, n. 1346 (hb. Gray.). INS. ST. HELENA: *Wilkes* (hb. U. S. Nat. Mus.). SIERRA LEONE: Freetown, *W. H. & A. H. Brown*, nn. 31a, 51 (hb. U. S. Nat. Mus.). AEGYPTO: prope Luxorem, *Kralik* (hb. Gray.), prope Girgeh, *Joad* (hb. U. S. Nat. Mus.). NUBIA: in insula Tutli ad urb. Chartum, *Kotschy*, n. 327 (hb. Gray.). AFR. ORIENT. GERMAN.: Kilima Njaro, *Abbott* (hb. U. S. Nat. Mus.); Usambara, *Holst*, n. 8860 (hb. U. S. Nat. Mus.). NYASSALAND: *Buchanan*, n. 740 (hb. U. S. Nat. Mus.). SANSIBAR: *Stuhlmann* (hb. Gray.). MADAGASCAR: Imerina, *Hildebrandt*, n. 3500 (hb. Gray., hb. U. S. Nat. Mus.); Nossi-be, *Hildebrandt*, n. 3304a (hb. J. D. Sm.); *Shufeldt*, n. 101 (hb. U. S. Nat. Mus.). CHINA: Meng-Tsze, *Henry*, n. 9094 (hb. U. S. Nat. Mus.); Canton, *Williams* (hb. Gray.); Hong Kong, *Wright* (hb. U. S. Nat. Mus.). IND. OR.: Sikkim, reg. subtrop., *Hooker f.* (hb. Gray.), Khasia, reg. subtrop., *Hooker f. & Thompson* (hb. Gray.); in locis incultis prope Mangalor, *Hohenacker*, n. 1 (hb. Gray.). ASSAM: Dumar Dallang, *Watt*, n. 10, 431 (hb. U. S. Nat. Mus.). SIAM: Bangkok, *Zimmermann*, n. 70 (hb. U. S. Nat. Mus.). BURMA SUPERIOR: a legulo cl. Kingii, n. 11 (hb. Gray.). MALACCA: *Cuming*, n. 2362 (hb. Kew., phot. in hb. Gray.). JAVA: *Zollinger*, n. 23 (hb. Gray.). INS. PHILIPPENSES: *Cuming*, n. 2419 (hb. Gray.); Manila, *Merrill*, n. 35 (hb. Gray.); Luzon, *Merrill*, n. 1955 (hb. Gray.), *Ramos*, n. 2086 (hb. Gray.); Cution, *Merrill*, n. 563 (hb. Gray.). INS. VITENSES: *Seemann*, n. 267 (hb. Gray.). INS. TONGENSES: *Moore*, n. 469 (hb. U. S. Nat. Mus.). INS. HAWAIIENSES: Oahu, *Remy*, n. 229 (hb. Gray.), *Drill* (hb. Gray.), *Heller*, n. 1999 (hb. Gray., hb. U. S. Nat. Mus.).

Forma **album** (Willd.), comb. nov., formae typicae habitu, foliis, etc., simillimum differt solum corollis albis.— *A. album* Willd. ex Steud. Nom. 18 (1821). *Carelia conyzodes* [L.] Ktze., α *robusta* Ktze., var. *alba* (Willd.) Ktze. Rev. Gen. i. 325 (1891), etiam γ *pusilla* Ktze., var. *alba* Ktze., l. c.— Cum forma typica late dispersa tamen multo rarior, e. g. Porto Rico: in graminosis ad "Cacoa," *Sintenis*, n. 5874 (hb. J. D. Sm.).

Var. INAEQUIPALEACEUM Hieron., formae typicae habitu, foliis, etc.,

simillimum differt pappi paleis valde inaequilongis, saepius 1–3 setiferis corollas subaequantibus, ceteris brevioribus squamiformibus muticis.— Hieron. in Engl. Bot. Jahrb. xix. 44 (1894).— COLUMBIA: ad Fusagasuga, *Holton* (hb. Kew.); prope Popayan, *Lehmann*, n. 4666 (hb. Berol., fragm. in hb. Gray.); in campis prope Chapa in prov. Cauca, alt. 1860 m. (fl. albis), *Lehmann*, n. 3600 (hb. Gray., hb. J. D. Sm.), n. 3601, fl. caeruleis (hb. Gray.). BOLIVIA: Yungas, *Bang*, n. 407 (hb. Gray.). PERUVIA: Lima, *Wilkes* (hb. U. S. Nat. Mus., hb. Gray.). INS. BAHAMENSES: ad Nassau, *Curtiss*, n. 77 (hb. Gray., hb. U. S. Nat. Mus.); Harbor Ins., *E. G. Britton*, n. 6375 (hb. U. S. Nat. Mus.). INSULA PINORUM: *Taylor*, n. 191 (hb. Gray., hb. U. S. Nat. Mus.). SANTO DOMINGO: in ripis fluminis Jaina, *Wright, Parry & Brummel*, n. 250 (hb. U. S. Nat. Mus.), n. 264 (hb. Gray., hb. U. S. Nat. Mus.).

NOTA.— Haec varietas in loco intermedio stat inter *A. conyzoidem* et *A. latifolium* et occurrit solum in regionibus ubi utraque species reparantur, numquam ut videtur in Africa, Asia, insulis Pacifici Maris, ubi *A. latifolium* deest. An forma hybrida?

7. A. SUFFRUTICOSUM Regel, perenne suffruticosum canescenti-pilosum; caule ramoso ad inflorescentiam folioso dense pubescenti; foliis oppositis vel supremis alternis rhomboideo-ovatis serrato-dentatis 3-nerviis attenuatis sed in apice vero obtusis basi abrupte contractis ad insertionem petioli tamen plus minusve cuneatis; corymbis trichotomis planiusculis multicapitulatis; capitulis multifloris; involucri squamis subaequalibus; corollis caeruleis; achaeniis argute angulatis leviter arcuatis in angulis minute sursum hispidulis; pappi paleis 5 ovato-lanceolatis dentatis in aristas ca. 3-plo longioribus disinentibus. — Gartenfl. iii. 389, t. 108 (1854). *Eupatorium nanum* Hort. ex Regel, l. c. 389. *Ageratum nanum* Hort. ex Sch. Bip. in Koch & Fint. Wochenschr. i. Garten-Nachtr. 26 (1858).— Species minus cognita a nobis non visa in hortis gallicis primo cultis origine ignota.

8. A. GAUMERI Robinson, annuum ad 4 dm. altum erectum vel reclinatum ramosissimum laxe pubescens; caule tereti; foliis oppositis graciliter petiolatis oblongo-ovatis crebre et regulariter serratis vel crenatis acuminatis basi rotundatis 3.5–7 cm. longis 2.5–5 cm. latis utrinque viridibus laxe subadpresseque villosis; inflorescentia perlaxa, pedicellis 2–4 (usque ad 6) cm. longis bracteolis paucis parvis subulatis munitis; capitulis numerosis pro genere majusculis oblate sphaericis 7–9 mm. diametro; involucri squamis linearibus attenuatis viridibus 2-costatis subaequalibus; receptaculo conico nudo; corollis glabris limbum versus caeruleo-purpureis, tubo proprio gracili fauces

distincte ampliatas cylindratas subaequanti; achaeniis nigris vix in angulis obscure hispidulis 1.2 mm. longis; pappi squamis 5 aliis saepissime brevioribus muticis aliis in aristam disinentibus et achaenium longitudine subaequantibus.— Proc. Am. Acad. xlvii. 191 (1911). *A. intermedium* Millsp. Field Columb. Mus. Pub. Bot. Ser. iii. 90 (1904), non Hemsl.— YUCATAN: Izamal, *Gaumer*, n. 395 (hb. Gray., hb. U. S. Nat. Mus.); Merida, *Valdez*, n. 13 (hb. Gray., hb. U. S. Nat. Mus.).

9. A. RUGOSUM Coult., erectum verisimiliter perenne; caule tereti sordide pubescenti purpurascenti ad inflorescentiam folioso superne ramoso 4 dm. vel. ultra alto; foliis ovatis attenuatis acutis serratis 3(–5)-nerviis 6–8 cm. longis 3.5–4.3 cm. latis supra scabriusculis rugulosis vel planis tenuiter pubescentibus subtus paullo pallidioribus pubescentibus et puncticulatis basi rotundatis; petiolo usque ad 1.5 cm. longo; corymbis terminalibus multicapitulatis 3–6 cm. diametro; capitulis 7 mm. diametro ca. 65-floris; involucri turbinato-campanulati squamis subaequalibus lanceolato-linearibus attenuatis uncinatis dorso 2-costatis hirsutis; receptaculo conico plerumque nudo margine solo paleis paucissimis instructo; corollis caeruleo-purpureis 2.5 mm. longis glandulari-granulosis supra mediam partem in fauces turbinato-campanulatas paullo ampliatis; achaeniis argute 5-angulatis deorsum decrescentibus nigris glaberrimis lucidis basi albido-callosis; pappo e paleis 5 saepius deltoideis brevibus (ca. 0.3 mm. longis) acutis vel obtusis et denticulatis basi per tertiam partem longitudinis connatis.— Bot. Gaz. xx. 42 (1895); J. D. Sm. Enum. Pl. Guat. iv. 72 (1895). *A. latifolium* Hemsl. Biol. Cent.-Am. Bot. i. 82 (1881) quoad pl. guatem.— GUATEMALA: Santa Rosa, alt. 915 m., *Heyde & Lux* (distrib. J. D. Sm.), n. 4243 (hb. J. D. Sm.); basi montis igniv. Fuego, *Salvin & Godman*, n. 48 (hb. Kew.); San Cristobal, alt. 1400 m., *v. Tuerckheim*, n. II 2051 (hb. Gray., hb. J. D. Sm.); alt. 1130 m., *Deam*, n. 6169 (hb. Gray.) et dubitatim n. 6208 (hb. Gray.)— forma foliis multo minoribus.

NOTA.— Ob pappo e squamulis basi connatis transitionem ad Subg. *Coelestinam* formans. Plantae nonnullae perplexantes occurrunt, e. g., San Salvador, *Velasco* (distrib. J. D. Sm.), n. 8967 (hb. J. D. Sm.), cum habitu passim *A. rugosi* sed cum pappo subintegro *A. corymbosi;* Guatemala, Alta Verapaz, *Goll.* n. 114 (hb. U. S. Nat. Mus., hb. J. D. Sm.), cum pappo *A. rugosi* sed foliis minoribus subtus dense canescenteque tomentosis.— Formae ultius inquirendae.

10. **A. platypodum**, spec. nov., robustum subglabrum; caule (basi ignoto) superne suberecto paucirameo folioso tereti purpurascenti crassiusculo paullo lignescenti tamen medulloso obscure puberulo tardius glabrato; foliis magnis ovatis obtuse acuminatis grosse crena-

tis oppositis supra viridibus obscure adpresseque pilosis subtus pallidioribus glaucescentibus in veniis parcissime pilosis 5–8 cm. longis 3–5 cm. latis basi subcuneatis in petiolum subdecurrentibus; petiolo 1–2 cm. longo obcompresso latiusculo supra late canaliculato paullo adpresse piloso vel subglabro; corymbis in caule et ramis terminalibus pedunculatis 7–12-capitulatis; pedicellis crispe puberulis 7–17 mm. longis; bracteolis setaceis; capitulis majusculis 8–9 mm. diametro; involucri late campanulati basi umbonati squamis oblongo-lanceolatis 1–2-costatis adpresse pilosulis; receptaculo nudo; corollis limbum versus purpureis extus hispidulis, tubo proprio gracili papilloso in fauces cylindratas subglabras sensim dilatato; achaeniis atrobrunneis vel nigrescentibus glabris nitidis 1.8 mm. longis basi callosis; pappi paleis 5–8 oblongis obtusis dentatis vel laciniatis 0.5 mm. longis.— MEXICO: ad Guadalajaram, *Palmer* (anno 1886), n. 437, pro parte (hb. Gray., hb. U. S. Nat. Mus., hb. J. D. Sm.).

NOTA.— Species bene distincta cum *A. Houstoniano* tamen a legulo commixta et sub nomine *A. conyzoides*, var. *mexicanum* distributa, sed facile ob pappi paleis multo brevioribus, foliorum forma, etc., distinguenda.

11. A. LATIFOLIUM Cav., annuum erectum vel decumbens laxe pubescens 3–5 dm. altum; radice fibrosa; caule tereti striato viridi vel purpureo saltim ad nodos piloso; ramis arcuato-ascendentibus nudiusculis corymbiferis; foliis ovatis vel ovato-oblongis crenato-serratis obtusis basi rotundatis 2–5 cm. longis 1–3.5 cm. latis tenuibus utrinque parce pilosis subtus paullo pallidioribus impunctatis; petiolis 1–1.7 cm. longis pubescentibus; corymbis 5–8-capitulatis inaequaliter sed saepius longe pedunculatis, bracteis primariis foliaceis, bracteolis setaceis, pedicellis 2–6 mm. longis; capitulis ca. 6 mm. diametro ca. 40-floris; involucri squamis lanceolato-oblongis acutis 2-costatis subaequalibus viridibus vel purpurascentibus subglabris; corollis violaceis vel albis subglabris a media parte sensim ampliatis; achaeniis nigris in angulis minute sursum hispidulis vel glabris; pappi paleis oblongis vel ovatis vel lanceolatis muticis.— Ic. iv. t. 357 (1797). *Ageratum brachystephanum* Regel, Gartenfl. iii. 245, t. 108, fig. c (1854). *A. muticum* Griseb. Fl. Brit. W. Ind. 356 (1861). *A. maritimum* β Sch. Bip. ex Griseb. l. c. *Calea densiflora* Klatt, Leopoldina, xx. 96 (1884). *Carelia brachystephana* (Regel) Ktze. Rev. Gen. i. 325 (1891). *C. mutica* (Griseb.) Ktze. l. c.— MEXICO: Tepic, *Palmer* (anno 1892), n. 1834 (hb. Gray.). COSTA RICA: in sepi ad Turrialbam, alt. 200 m., *Touduz*, n. 4139 (hb. J. D. Sm.). CUBA: in rupibus montium Farallonium, *Wright*, n. 1631 (hb. Gray.). INS. BAHAM.: Little Harbor Cay, *Britton & Millspaugh*, n. 2240 (hb. U. S. Nat. Mus.); Harbor Ins.,

E. G. Britton (hb. U. S. Nat. Mus.); secundum vias et in ruderis, *Wight*, n. 26 (hb. Gray.). SANTO DOMINGO: alt. 50 m., ad Paradis, *Fuertes*, n. 458 (hb. U. S. Nat. Mus.). JAMAICA: *March* (hb. Kew., phot. in hb. Gray.). COLUMBIA: *Triana*, n. 1157 (hb. Kew.). VENEZUELA: Caracas, *Wagener*, f. Regel., l. c. PERUVIA: prope Limam, *Née*, f. Cav. l. c., *Gaudichaud*, n. 106 (hb. Gray.).

NOMEN VULGATUM peruviorum *Teatina* ex Cav. l. c.

NOTA.— Ab vulgato *A. conyzoide* praecipue pappo breviori mutico ab auctoribus successivis sub nominibus diversis sejunctum quam species fortasse videndum, tamen in *A. conyzoidem*, var. *inaequipaleaceum* facillime et saepissime transiens.

NOTA.— Ad hanc speciem praeterea *Coelestinam parvifoliam* DC. Prod. v. 108 (1836), plantam minus cognitam ob speciminis typici axi frusto praecipue ab axibus lateralibus parvifoliatis descriptam confidenter refero.

Var. **galapageium**, var. nov., valde decumbens; foliis tenuissimis; capitulis plerisque minoribus 3–5 mm. diametro ca. 20-floris; pappi squamulis saepius (non semper) brevissimis vix 0.2 mm. longis.— *A. conyzoides* Hook. f. Trans. Linn. Soc. xx. 207 (1847); Anderss. Stockh. Akad. Handl. 1853, p. 175 (1854), et Om Galap. Veg. 67 (1857); Robinson & Greenman, Am. Jour. Sci. ser. 3, l. 146 (1895); Stewart, Proc. Calif. Acad. Sci. ser. 4, i. 148 (1911); non L. *Coelestina latifolia* Anderss. ll. cc. quoad plantam, nec Benth. *Ageratum latifolium* Robinson, Proc. Am. Acad. xxxviii. 209 (1902), quoad plantam, nec Hemsl.— INS. GALAPAGOS: Charles Insula, *Darwin*, *Andersson* (hb. Gray.), *Baur*, *Snodgrass & Heller*, n. 423 (hb. Gray.). Verisimiliter etiam in insulis Chatham et Albemarle, tamen pl. Chierchiae ex illa numquam vidi et pls. Stewartii ex utraque non critice revidi.

12. A. MARITIMUM HBK., herbaceum decumbens a basi ramosum parce pilosus 2.5–3.5 dm. altum annuum vel perenne; caule ramisque teretibus juventate viridibus striatulis per majorem partem foliosis aetate a cortice flavido-griseo exfolianti tectis; foliis oppositis ovato-oblongis vel anguste deltoideis obtusiusculis regulariter crenatis basi integris abrupte contractis subtruncatis vel subcordatis 1.5–3 cm. longis 9–22 mm. latis subglabris; petiolo 9–15 mm. longo gracili villoso-hirsutulo; pedunculis 2–11 cm. longis aut terminalibus aut lateralibus; cymis 3–5-capitulatis; capitulis ca. 7 mm. diametro ca. 75-floris; involucri squamis lanceolati-oblongis acuminatis viridibus 2-costatis glabriusculis; receptaculo leviter convexo nudo; corollis 3 mm. longis fere tubulatis in fauces vix ampliatis parce pubescentibus limbum versus violaceis (Kunth), caeruleis aut albis (Shafer), caeruleis aut roseis (Palmer & Riley), purpureis (Wright), breviter hispidulis; achaeniis nigris acute 5-angularibus 2.1 mm. longis glabris; pappo e

squamulis saepius 5 ovatis laciniatis acutis vix 0.3 mm. longis basi hinc inde plus minusve connatis.— Nov. Gen. et Spec. iv. 150 (1820). *Carelia maritima* (HBK.) Ktze. Rev. Gen. i. 325 (1891).— CUBA: arenosis maritimis prope Havanam, *Humboldt & Bonpland*, n. 1273 (hb. Par., phot. in hb. Gray.); *Curtiss*, n. 650 (hb. Gray., hb. U. S. Nat. Mus.); prope Mariel, Pinar del Rio, *Palmer & Riley*, n. 712 (fl. caeruleis, hb. U. S. Nat. Mus.), n. 739 (fl. roseis, hb. U. S. Nat. Mus.); Bay Corrientes, *Wright*, n. 1631 (hb. Gray.); Cayo Sabinal, Camaguey, *Shafer*, n. 1099 pro parte (hb. Gray., hb. U. S. Nat. Mus.).

Forma **calvum**, forma nova, achaeniis omnino epapposis ab annulo sub corolla nec extra corollam oriunti coronatis, aliter nullo modo a forma typica discretum.— CUBA: Cayo Sabinal, Camaguey, *Shafer*, n. 1099 pro parte (hb. Gray.); YUCATAN: in insula Cozumel, *Gaumer*, n. 20 (fl. albis, hb. Berol., hb. Gray.).

Var. **intermedium** (Hemsl.), comb. nov., formae typicae habitu foliis etc. simillimum differt pedunculis paullo longioribus (6–18 cm. longitudine); pappi squamulis distincte longioribus (ca. 0.7 mm. longitudine) aliis (1–3) setiferis aliis acutis sed muticis.— *A. intermedium* Hemsl. Biol. Cent.-Am. Bot. iv. 102 (1887).— YUCATAN: in insula Cozumel, *Gaumer*, n. 93 (hb. Kew., hb. Gray.).

NOTA.— *A. maritimum* quamquam a Hook. f. & Jacks. Ind. Kew. i. 58 (1895) ad vulgatissimum *A. conyzoidem* incaute reductum apparet speciminibus numerosis examinatis bene distinctum.

13. A. LITTORALE Gray, decumbens a basi ramosissimum 3–4 dm. altum subglabrum verisimiliter perenne; ramis teretibus pallide brunneis vel purpurascentibus basi saepius decumbentibus deinde erectis fere ad mediam partem foliosissimis superne nudis apice corymbiferis; foliis oppositis saepe fasciculatis rhombeis basi attenuatis integris aliter inciso-dentatis apice acutiusculis 11–27 mm. longis 10–14 mm. latis glaberrimis subcarnosis 3-nerviis saepe conduplicatis; petiolis gracillimis 9–25 mm. longis apicem versus paullo dilatatis; pedunculis 6–16 cm. longis; corymbis parvis densis 4–13-capitulatis; pedicellis brevibus cum bracteolis subulatis parvis munitis; capitulis 5 mm. diametro; involucri squamis anguste lanceolatis attenuatis acutissimis glabris 2-costatis; corollis 2.7 mm. longis limbum versus caeruleo-purpureis, tubo proprio minute puberulo fauces cylindratas pallidas subaequanti; achaeniis nigris glabris lucidis 1.3 mm. longis prismaticis basi callosis apice cum annulo humili cartilagineo saepius integro coronatis; pappo saepius vero nullo rarius e dentibus 2–5 brevissimis obscuris composito.— Proc. Am. Acad. xvi. 78 (1880), Syn. Fl. i. pt. 2, 93 (1884). *Coelestina maritima* Torr. & Gray, Fl. ii.

64 (1841), non *Ageratum maritimum* HBK. *Carelia litorale* [Gray] Ktze. Rev. Gen. i. 325 (1891).— In insulis parvis FLORIDAE AUSTRALIS: in litoribus corallinis, Key West, *Bennett; Blodget* (hb. Gray.); *Palmer* (anno 1874), n. 192; *Garber*, (hb. Gray, hb. U. S. Nat. Mus.); *Tweedy*, n. 312 (hb. U. S. Nat. Mus.); *Pollard, Collins & Morris*, n. 12 (hb. U. S. Nat. Mus.); Boca Chica Key, *Curtiss*, n. 1163 (hb. Gray., hb. U. S. Nat. Mus., hb. J. D. Sm.); No Name Key, *Simpson*, n. 246 (hb. U. S. Nat. Mus.); Few-fish Key, *Curtiss*, n. 5446 (hb. U. S. Nat. Mus.); *Chapman*, n. 49 (hb. J. D. Sm.).

Var. **hondurense**, var. nov., formae typicae multis simillimum differt foliis paullo majoribus usque ad 34 mm. longis et 20 mm. latis potius regulariter crenato-dentato nec incisis; involucri squamis paullulo villosis.— In insulis sinus hondurensis: RUTAN, *Gaumer*, n. 1 (hb. Berol., hb. U. S. Nat. Mus.). MUGERES, *Gaumer* (hb. Berol., hb. U. S. Nat. Mus.).

Forma **setigerum**, forma nova, a forma precedenti statura habitu foliis etc. nullo modo discretum, pappo tamen bene evoluto squamulis 5 lanceolatis attenuatis aliis (saepius 3) longe setiferis corollam longitudine aequantibus aliis plus minusve brevioribus.— In insula MUGERES hondurensi, *Gaumer* (hb. Berol., hb. U. S. Nat. Mus.) cum precedenti commixtum et pappo solo distinguendum.

Sect. II. COELESTINA (Cass.) Gray. Pappus e corona sistens margine integra vel plus minusve angulata vel dentata (rarissime setam unicam gerenti) hinc inde valde reductus.— Syn. Fl. i. pt. 2, 93 (1884). *Coelestina* Cass. Bull. Soc. Philom. Par. 1817, p. 10 (1817). DC. Prod. v. 107 (1836), pro parte. *Caelestina* Cass. Dict. Sci. Nat. xvi. 10 (1820), lx. 585 (1830). *Coelestinia* Endl. Gen. 366 (1838). *Ageratum* subg. *Coelestina* (Cass.) Bak. in Mart. Fl. Bras. vi. pt. 2, 197 (1876), pro parte.— Species 14 omnes neontogeae pleraeque suffrutices.

Clavis specierum.

a. Receptaculum paleaceum *b.*
  b. Paleae apice firmiusculae subulato-attenuatae *c.*
    c. Corollae purpureo-caeruleae. Folia subtus tomentosa et cum glandulis flavis vel aureo-brunneis creberrime tecta. Mex. 14. *A. paleaceum.*
    c. Corollae albae. Folia subtus tomentosa sed sine glandulis conspicuis. Mex. ..... 15. *A. albidum.*
  b. Paleae oblongae vel lineares apice obtusae vel acutae neque induratae nec subulato-attenuatae. Bras. ..... 16. *A. micropappum.*
a. Receptaculum nudum *d.*
  d. Rhizoma bene evolutum horizontali repens. Inflorescentia laxe dichotoma scorpoideo-cymosa ..... 17. *A. scorpoideum.*

d. Rhizoma brevissimum vel nullum. Inflorescentia corymbosa, capitulis rariter solitariis terminalibus *e.*

e. Folia a basi alterna .....18. *A. stachyofolium.*

e. Folia saltim pleraque opposita *f.*

f. Maritimum basi valde ramosum decumbens glabriusculum 13. *A. littorale.*

f. Non maritima rariter basi ramosa. Caules pubescentes vel puberuli *g.*

g. Annuae *h.*

h. Folia quamquam membranacea tamen firmiuscula subtus distincte pallidiora et glanduloso-punctata. Am. Cent. et Venez. .....19. *A. Oerstedii.*

h. Folia tenuissima subconcoloria subtus eglandulosa 11. *A. latifolium.*

g. Herbae perennes vel frutices *i.*

i. Folia sesqui vel bis (rariter 2½-plo) longiora quam lata *j.*

j. Folia subtus incano-tomentosa.....20. *A. tomentosum.*

j. Folia opaca utrinque griseo-pubescentia vel -tomentosa. Capitula saepius parvula *k.*

k. Involucrum 6–8 mm. diametro et altitudine. Achaenia 2.1–2.4 mm. longa *l.*

l. Folia basi valde obliqua. Involucri squamae in linea media ciliatae aliter glabrae extimis callosoobtusis. Costa Rica.....21. *A. riparium.*

l. Folia basi aequalia. Involucri squamae crispe puberulae acutissimae. Mex.....22. *A. corymbosum.*

k. Involucrum ca. 4 mm. diametro vix 3 mm. altitudine. Achaenia 1.6 mm. longa. Guatemala 23. *A. elachycarpum.*

j. Folia supra laete viridia modice lucida fere glabra subtus vix pallidiora saepius scabriuscula. Capitula pro genere majuscula *m.*

m. Petioli 3–4 cm. longi.....24. *A. petiolatum.*

m. Petioli breviores *n.*

n. Herbaceum vel lignescens. Folia crenata. Corollae caeruleae .....25. *A. scabriusculum.*

n. Fruticosum. Folia acute serrata. Corollae albae 26. *A. lucidum.*

i. Folia angustiora triplo usque ad quintuplo longiora quam lata 27. *A. salicifolium.*

14. A. PALEACEUM (Gay) Hemsl., herbaceum vel basi lignescens erectum ramosum; caule tereti brevissime crispeque griseo-tomentello; ramis oppositis virgatis foliatis saepius atropurpureis griseo-tomentellis; foliis oppositis breviter petiolatis ovato-lanceolatis crassiusculis integriusculis vel obscure dentatis acutiusculis basi etiam attenuatis supra scabris rugosis subtus reticulatis in nerviis et venis griseotomentosis in superficie cum glandulis perpluribus aureis vel flavidobrunneis obtectis; corymbis terminalibus multicapitulatis densis; pedicellis brevibus saepius rectis densissime glandulari-puberulis; capitulis ca. 25-floris 5 mm. diametro; involucri squamis anguste lanceolatis firmiusculis sed laxe imbricatis apice subulato-attenuatis

albidis dorso viridibus vel atropurpureis; receptaculo ubique paleifero; paleis apice subulato-attenuatis firmiusculis albidis corollas fere aequantibus; corollis extus glandulis aureis sessilibus conspicue conspersis limbum versus caeruleo-purpurascentibus, tubo proprio gracili fauces subaequanti; achaeniis glabris nigris 1.8 mm. longis; pappo crateriformi albido margine subintegro vel plus minusve dentato (hinc inde in setam expanso f. DC.).— Biol. Cent.-Am. Bot. ii. 83 (1881). *Coelestina paleacea* Gay ex DC. Prod. v. 107 (1836). *Carelia paleacea* (Gay) Ktze. Rev. Gen. i. 325 (1891). *Ageratum rhytidophyllum* Robinson, Proc. Am. Acad. xxxvi. 476 (1901).— MEXICO: circa Oaxacam, *Andrieux*, n. 287 (hb. DC., phot. in hb. Gray.); in convalli Oaxacanae, *E. W. Nelson*, n. 1446 (hb. Gray.); Sierra de San Filipe, alt. 2150 m., *Pringle*, n. 5675 (hb. Gray.), *C. L. Smith*, n. 594 (hb. U. S. Nat. Mus.), alt. 2440 m., *Pringle*, n. 6177 (hb. U. S. Nat. Mus., hb. J. D. Sm.); in montibus San Juan del Estado, *L. C. Smith*, n. 277 (hb. Gray.).

15. A. ALBIDUM (DC.) Hemsl., herbaceum perenne 3–6 dm. altum; caudice crassiusculo paullo lignescenti; radicibus fibrosis longis firmis; caulibus 1–3 vel pluribus teretibus striatulis viridibus vel purpurascentibus erectis vel plus minusve decumbentibus crispe griseo-tomentellis usque ad mediam partem foliosis superne nudis; foliis ovatis vel ovato-oblongis 3-nerviis crenato-serratis plerisque obtusis basi plus minusve angustatis 2.5–6 cm. longis 1.5–3.8 cm. latis supra viridibus rugosis saepius scabris subtus griseo-tomentellis vel -pubescentibus plus minusve reticulatis, glandulis paucis inconspicuis argenteis vel nullis; petiolis 3–5 mm. longis; pedunculo terminali elongato 1–3 dm. longo; bracteolis saepius parvis setaceis; corymbis leviter convexis 8–40-capitulatis 4–7 cm. diametro; capitulis 6–9 mm. diametro ca. 60-floris; involucri squamis lanceolatis acutis subaequalibus (extimis paucis brevioribus) viridibus dorso pubescentibus et hinc inde minutissime nigro-punctatis saepius 2-costatis apice albidis subulatis; receptaculo conico ubique paleifero; paleis linearibus apice subulatis albidis; corollis albis 2.7 mm. longis, tubo proprio gracili hispidulo fauces cylindratas glabriusculas subaequanti; limbi dentibus extus hispidulis; achaeniis 1.8 mm. longis saepius arcuatis nigris glabris lucidis; pappo crateriformi albo ca. 0.4 mm. alto margine denticulato.— Biol. Cent.-Am. Bot. ii. 81 (1881). *Coelestina albida* DC. Prod. v. 107 (1836). *Carelia albida* (DC.) Ktze. Rev. Gen. i. 325 (1891).— MEXICO: Oaxaca, inter urbem Oaxacam et Mitlam, *Andrieux*, n. 543 (hb. DC., phot. in hb. Gray.); in valle Etla, *Alvarez*, n. 751 (hb. Gray.); in collibus supra Oaxacam, alt. 1830 m., *Pringle*, n. 4816 (hb. Gray., hb.

U. S. Nat. Mus., hb. J. D. Sm.); in monte Alban prope urbem Oaxacam, alt. 1680–1830 m., *C. L. Smith*, n. 365 (hb. U. S. Nat. Mus.); Tecrango, alt. 2075 m., *L. C. Smith*, n. 424 (hb. Gray.); Cerro de San Felipe, alt. 2000 m., *Conzatti & González*, n. 542 (hb. Gray.); in collibus aridis vallis Oaxacae, alt. 1550–1770 m., *Nelson*, n. 1208 (hb. Gray.).

Var. **Nelsonii**, var. nov., caulibus altius foliosis; foliis majoribus tenuioribus late ovatis basi rotundatis utrinque viridibus subtus vix pallidioribus molliter pubescentibus nec tomentosis 6–11 cm. longis 2.5–4.5 cm. latis; petiolis usque ad 2 cm. longis; involucro, paleis, pappo, etc. ut apud formam typicam; corollis ut videtur caerulescentibus.— MEXICO: in civitate Oaxaca inter oppida Zanatepec et Papana, alt. 200 m., *E. W. Nelson*, n. 2822a (hb. Gray.). Varietas vegetior fortasse quam species distincta videnda tamen sine characteribus validis.

16. A. MICROPAPPUM Bak., fruticosum; ramis virgatis striato-angulatis crispe puberulis et glanduloso-atomiferis, internodiis 5–11 cm. longis; foliis oppositis obovato-oblongis coriaceis argute serrato-dentatis apice rotundatis basi attenuatis 4–8 cm. longis 2–4 cm. latis supra viridibus glabriusculis laevibus subtus reticulato-venosis pallidioribus griseo-tomentellis; petiolo ca. 6 mm. longo supra canaliculato; corymbis terminalibus densissimis convexis ca. 4 cm. diametro; capitulis ca. 20-floris ca. 3 mm. diametro; involucri campanulati squamis oblongis apice rotundatis dorso saepissime 2-costulatis margine tenui ciliatis; paleis lineari-oblongis obtusis apice ciliolatis vel erosis; achaeniis glabris nigrescentibus prismaticis deorsum levissime decrescentibus basi callosis; pappo brevissimo coroniformi dentato; corollis fere exacte cylindratis glabris, faucibus vix ullis.— Bak. in Mart. Fl. Bras. vi. pt. 2, 198 (1876).— BRASILIA: prov. Bahia, *Blanchet*, n. 3700 (hb. Kew., hb. Gray.).

17. A. SCORPIOIDEUM Bak., herbaceum perenne subglabrum; rhizomate horizontali valde repente ad nodos radicante; caulibus erectis 3–4 dm. altis per totam longitudinem foliosis; foliis lanceolatis tenuibus penniveniis crenatis basi apiceque angustatis obtusis ca. 5 cm. longis 1 cm. latis; inflorescentiis terminalibus semel vel bis dichotomis deinde scorpioideo-cymosis; capitulis parvis graciliter pedicellatis vel supremis subsessilibus 4–5 mm. diametro 18–31-floris; involucri squamis late oblanceolatis acutis glabris tenuibus subcostatis; receptaculo nudo; corollis 1.8 mm. longis glabris, tubo proprio brevissimo faucibus campanulatis duplo breviori; achaeniis 1.3 mm. longis nigris glabris prismaticis deorsum paullo decrescentibus basi callosis;

pappo coroniformi dentato tenui quam achaenio ter vel quater breviori.— Bak. in Mart. Fl. Bras. vi. pt. 2, 197 (1876); Robinson, Proc. Am. Acad. xlii. 34 (1906). *Coelestina repens* Sch. Bip. in Schomb. Faun. et Fl. Guy. 1134 (1848), sine char.— GUIANA ANGLICA: in graminosis verisimiliter plus minusve paludosis "savannas" dictis, *Rob. Schomburgk*, n. 353 f. Bak. l. c., *Rich. Schomburgk*, n. 488 (hb. Berol., fragm. et phot. in hb. Gray.).

18. A. STACHYOFOLIUM Robinson, herbaceum perenne 5–6 cm. altum strictum; caule simplici erecto tereti rubescenti griseo-tomentello foliosissimo; foliis alternis ovato-oblongis vel ellipticis crenulatis 1.5–3.2 cm. longis 1–1.4 cm. latis basi rotundatis sessilibus vel brevissime petiolatis apice obtusis vel rotundatis paullo supra basin 3-nerviis supra parce pilosis subtus paullo pallidioribus laxe pubescentibus et glandulari-punctatis; corymbo terminali leviter convexo ca. 10-capitulato 4 cm. diametro; pedicellis 1.5–1.8 cm. longis tomentellis; bracteolis spatulato-filiformibus 8–11 mm. longis; capitulis ca. 1 cm. diametro ca. 100-floris involucri squamis linearibus acutis viridibus pubescentibus saepius 4-costatis; corollis albis, tubo proprio longiusculo puberulo, faucibus turbinatis; styli ramis pallidis clavellatis; achaeniis atrobrunneis 2 mm. longis basin versus paullo decrescentibus; pappo crateriformi albido margine integro.— MEXICO: Oaxaca prope La Parada, alt. 2310–2620 m., *Nelson*, n. 991 (hb. Gray.). Species ob foliis omnibus alternis pedicellis longis capitulis majusculis praesertim ob involucri bracteis 4-costatis bene distincta.

19. **A. Oerstedii,** nom. nov., herbaceum annuum erectum simplex vel patentim paucirameum glabriusculum vel saltim ad nodos hirsutulum 3–5 dm. altum; radice fibrosa; foliis ovatis vel ovato-oblongis crenatis obtusis vel obtuse acuminatis basi abrupte contractis utrinque sparse pilosis supra viridibus subtus pallidioribus glanduloso-punctatis 4–7 cm. longis 2–5 cm. latis, petiolo 1–2 cm. longo piloso; corymbis longipedunculatis caulem ramosque terminantibus laxiusculis paucicapitulatis; capitulis 7.5 mm. diametro; involucri squamis viridibus sparse hirtellis vel glabriusculis anguste lanceolatis attenuatis; corollis caeruleo-purpureis glabris ca. 2.2 mm. longis, tubo proprio fauces cylindratas paullo ampliatas vix aequanti; achaeniis nigris glabris; pappo minimo coroniformi dentato obscuro sed sub lente forte manifestim extra corollam locato.— *A. latifolium* (Benth.) Hemsl. Biol. Cent.-Am. Bot. ii. 82 (1881), quoad pl. costaricense, non Cav. *Coelestina latifolia* Benth. in Oerst. Vidensk. Meddel. 1852, p. 71 (1852). *Carelia latifolia* (Benth.) Ktze. Rev. Gen. i. 325 (1891).—COSTA RICA: in Monte Aguacate, *Oersted*, n. 251 (hb. Kew., phot. in hb. Gray.);

in apertis silvarum, Cerro de San Isidro prope San Ramon, alt. 1300 m., *Brenes*, n. 14,491 (hb. Gray.).

20. A. TOMENTOSUM (Benth.) Hemsl., herbaceum perenne vel suffruticosum basi ramosum; ramis virgatis vel iterum ramosis puberulis vel tomentellis; foliis oppositis ovatis vel deltoideis crenatis plerisque obtusis basi rotundatis vel truncatis ad insertionem petioli plus minusve cuneatis supra saepius viridibus tenuiter pubescentibus vel tomentellis subtus canescenti-tomentosis 1.3–3.5 cm. longis 1–2.5 cm. latis margine saepe revolutis; petiolis 5–16 mm. longis; corymbis longe pedunculatis convexis densis subsimplicibus vel compositis; capitulis ca. 5 mm. diametro; involucri campanulati squamis anguste lanceolatis tomentellis viridibus 2-costatis; corollis caeruleo-purpureis vel albis plerisque glandulari-atomiferis et apicem versus hispidulis; achaeniis atrobrunneis glaberrimis 2 mm. longis; pappo albido coroniformi margine plus minusve angulato vel dentato.— Biol. Cent.-Am. Bot. ii. 82 (1881). *Coelestina tomentosa* Benth. in Oerst. Vidensk. Meddel. 1852, p. 71 (1852). *Carelia tomentosa* (Benth.) Ktze. Rev. Gen. i. 325 (1891).— COSTA RICA: Candelaria, alt. 1525 m., *Oersted*. MEXICO: Chiapas, in silvis pinorum, *Ghiesbreght*, nn. 111, 547 (hb. Gray.), forma foliis majusculis; Orizaba, Maltrata, alt. 1680 m., *Seaton*, n. 346 (hb. Gray., hb. U. S. Nat. Mus.); Esperanza, alt. 2440 m., *Seaton*, n. 358 (hb. Gray., hb. U. S. Nat. Mus.); Vera Cruz, *Linden*, n. 1185 (hb. Kew., phot. in hb. Gray.); silvis prope Jalapam, *Galeotti*, n. 2202 (hb. Kew., phot. in hb. Gray.); Puebla, in declivibus calcareis, Tehuacan, alt. 1700–1800 m., *Pringle*, n. 6754 (hb. Gray., hb. U. S. Nat. Mus., hb. J. D. Sm.), n. 9522 (hb. Gray., hb. U. S. Nat. Mus.), *Purpus*, n. 1179 (hb. Gray.); Zacuapan, in graminosis aridis, *Purpus*, n. 1870 (hb. Gray.). Sierra de la Yerba, *Purpus*, n. 2547 (hb. Gray., hb. U. S. Nat. Mus.), forma receptaculo paleis paucis instructo; Oaxaca, Tomellin Cañon, alt. 915 m., *Pringle*, n. 5786 (hb. Gray.); collibus aridis alt. 1550–1775 m., *Nelson*, n. 1213 (hb. Gray.); Jayacatlan, alt. 1300 m., *L. C. Smith*, 285 (hb. Gray.); in Monte Alban prope urbem Oaxacam, alt. 1680 m., *Pringle*, n. 6267 (hb. Gray., hb. U. S. Nat. Mus., hb. J. D. Sm.); San Luis Potosi, Minas de San Rafael, *Purpus*, n. 4814 (hb. Gray., hb. U. S. Nat. Mus.).

NOTA.— Species foliis et pubescentia variabilis, formis mexicanis a forma typica costaricense minus cognita adhuc ut videtur numquam reperta fortasse distinguendis.

21. **A. riparium**, spec. nov., caule (parte inferiori ignota) superne medulloso crassiusculo glabello tactu laevissimo purpurascenti, internodiis longis folia superantibus; foliis oppositis crassiusculis

ovatis longiuscule acuminatis sed ad apicem verum obtusis basi plus minusve angustatis valde inaequalibus et obliquis margine undulatis supra scabriusculis subglabris verucosis subtus paullo pallidioribus punctatis et breviter praesertim in veniis pilosulis ca. 8 cm. longis ca. 4 cm. latis; petiolis ca. 1 cm. longis; corymbis in caule ramisque terminalibus 4–8-capitulatis densis; capitulis 7 mm. diametro 70-floris; involucri campanulati squamis ca. 23 subaequalibus lanceolati-linearibus 2-costatis viridibus in linea media (inter costas) ciliatis aliter subglabris extimis calloso-obtusis interioribus attenuatis; receptaculo conico nudo; corollis albis glaberrimis eglandulosis, tubo proprio gracili fauces cylindratas subaequanti; achaeniis nigrescentibus saepius curvatis glaberrimis vel basin versus in angulis obscure hispidulis; pappi corona ad mediam partem 5-lobata, lobis plerisque deltoideo-ovatis muticis margine denticulatis.— *A. tomentosum* Klatt, Bull. Soc. Bot. Belg. xxxi. 185 (1892), pro parte, non Hemsl. (a quo longe distat).— Costa Rica: in arenosis secundum flumen Ceibo, *Pittier*, n. 4914 (hb. Gray.).

Nota.— Haec planta minus cognita (an abnormalis) differt ab *A. corymboso* caule ut videtur herbaceo, foliis basi obliquis, involucri squamis laevioribus extimis calloso-obtusis, corollis glaberrimis, ab *A. scabriusculo* foliis multo majoribus basi obliquis, corollis albis, characteribus involucri, ab *A. tomentoso* toto coelo.

22. A. corymbosum Zuccag., suffruticosum vel vero fruticosum erectum vel saepe decumbens 3–7 dm. altum simplex vel ramosum plus minusve griseo-pubescens vel -tomentosum; foliis oppositis vel supremis alternis firmiusculis ovatis vel rhomboideo-lanceolatis plerisque acutis basi rotundatis vel cuneatis margine grosse crenatis vel dentatis rarius serratis a basi 3(–5)-nerviis saepe reticulatis 3–6 cm. longis 1–3.5 cm. latis utrinque pallide viridibus supra saepius scabris puberulis subtus molliter crispe puberulis vel plus minusve tomentosis; petiolis 4–8 mm. longis; corymbis in caule ramisque terminalibus saepe pluribus simplicibus vel compositis multicapitulatis; pedicellis filiformibus 3–12 mm. longis glandulari-tomentellis; capitulis ca. 7 mm. diametro; involucri campanulati vel hemisphaerici squamis lanceolato-linearibus attenuatis hispidulis 2-costatis apicem versus saepe coloratis; receptaculo nudo; corollis extus parce glandulari-atomiferis et saepius plus minusve pubescentibus limbum versus caeruleis et vulgo hispidulis, tubo proprio gracili fauces paullo ampliatas subaequanti; achaeniis 2.2 mm. longis atrobrunneis vel nigrescentibus glabris; pappo crateriformi 0.3 mm. longo albido margine subintegro vel paullo irregulariterque dentato.— Zuccag. ex Pers. Syn. ii. 402 (1807). *Spargano-*

phorus ageratoides Lag. Elench. Hort. Matr. 25 (1815) f. Hemsl. Biol. Cent.-Am. Bot. ii. 81 (1881) et Lag. Nov. Gen. et Spec. 25 (1816). *Ageratum coelestinum* Sims, Bot. Mag. t. 1730 (1815). *Caelestina coerulea* Cass. Dict. vi. Suppl. 8 (1817). *Coelestina corymbosa* (Zuccag.) DC. l. c. *C. suffruticosa* Sweet, Hort. Brit. 229 (1826). *Coelestinia Lessingiana* Klotzsch ex Walp. Rep. ii. 545 (1843) f. Hook. f. & Jacks. Ind. Kew. i. 370 (1895) sub nomine *Caelestina*. *Coelestina Lessingiana* (Klotzsch) Hemsl. Biol. Cent.-Am. Bot. ii. 81 (1881). *Carelia corymbosa* (Zuccag.) Ktze. Rev. Gen. i. 325 (1891).— TEXAS OCCIDENT.: ad angustas Guadelupe, *Wright*, n. 1129 (hb. Gray., hb. U. S. Nat. Mus.). MEXICO: Nuevo Leon, ad Monclovam, *Palmer* (anno 1880), n. 427 (hb. Gray., hb. J. D. Sm.); Coahuila, Saltillo, *Palmer* (anno 1880), n. 428 (hb. Gray., hb. U. S. Nat. Mus.), *Palmer* (anno 1898), n. 307 (hb. Gray.), in Lorenzo Cañon prope Saltillo, *Palmer* (anno 1904), n. 387 (hb. Gray.), Sierra de Parras, *Purpus*, n. 4651 (hb. Gray., hb. U. S. Nat. Mus.); Chihuahua, ad Cosihuiriachi, *Wislizenus*, n. 181 (hb. Gray.), prope urbem Chihuahuam, *Pringle*, n. 669 partim (hb. U. S. Nat. Mus.), Porral, alt. 1830 m., *Nelson*, n. 5006 (hb. Gray.); San Luis Potosi, alt. 1830–2440 m., *Parry & Palmer*, n. 317 (hb. Gray., hb. U. S. Nat. Mus.) ad var. *jaliscense* spectans, *Ward* (hb. U. S. Nat. Mus.), in umbrosis circa urbem, *Schaffner*, n. 293 (hb. Gray.), ad Santa Maria del Rio, *Palmer* (anno 1904), n. 154½ (hb. Gray.); Guanajuato, *Guillemin-Tarayre* (hb. Gray.), *Dugès*, nn. 24, 426 (hb. Gray.); Durango, in montibus et collibus, *Palmer* (anno 1896), n. 506 (hb. Gray., hb. U. S. Nat. Mus.) ad var. *jaliscense* accedens, Tejamén, *Palmer* (1906), n. 486 (hb. Gray., hb. U. S. Nat. Mus.); Hidalgo, Real del Monte, *Coulter*, n. 247 (hb. Gray.), in petrosis montanis ad El Chico, *Purpus*, n. 1565 (hb. Gray.); Sinaloa, in Cerro Colorado ad Culiacan, *Brandegee* (hb. Gray.), forma glabrescens; Jalisco, ad Balaños, *Coulter*, n. 248 (hb. Gray.), Guadalajara, *Palmer* (anno 1886), n. 289 (hb. Gray. partim, hb. U. S. Nat. Mus., hb. J. D. Sm.); Querétaro, prope Cadereytam, *Rose, Painter & Rose*, n. 9631 (hb. Gray.); Val. de Mexico, *Bourgeau*, n. 719 (hb. Gray., hb. U. S. Nat. Mus.), in terra vulcanica, alt. 2440 m., *Pringle*, n. 9047 (hb. Gray.), prope Tacubayam, *Schaffner*, n. 202 (hb. Gray.); sine loco indicato, *Gregg*, n. 372 (hb. Gray.), *Schumann*, n. 40b (hb. J. D. Sm.).

NOMEN VULGATUM hispanice "cielitos" f. Dugèsii i. e. caelula, ad colorem azureum alludens.

Forma **album**, forma nov., corollis albis aliter formae typicae simile et aequaliter variabile.— MEXICO: Jalisco, prope Huejuquilla,

Rose, n. 2538 (hb. Gray.); Puebla, in collibus calcareis prope Amozac, alt. 2300 m., *Pringle*, n. 9542 (hb. Gray.) glabriusculum; Chihuahua aust.-occ., *Palmer* (anno 1885), n. 31 (hb. Gray., hb. U. S. Nat. Mus., hb. J. D. Sm.) griseo-tomentosum, prope urbem Chihuahuam, *Pringle*, n. 669 partim (hb. Gray., hb. J. D. Sm.).

Var. **latifolium** (DC.), comb. nov., erectum saepius simplex; foliis ovatis magnis 7–10.5 cm. longis 4–6 cm. latis gradatim acuminatis acutis acute serratis plerumque tenuibus vix vel haud reticulatis subtus tenuiter molliterque pubescentibus; corollis glandulosis et pilosis caeruleis.— *Coelestina ageratoides* HBK. Nov. Gen. et Spec. iv. 151 (1820)! et var. *β latifolia* DC. Prod. v. 108 (1836)! — MEXICO: sine loco indicato (hb. DC., phot. in hb. Gray.); Michoacan, inter Aguasarco et Ario, *Humboldt & Bonpland* (hb. Par., phot. in hb. Gray.); collibus aridis, Patzcuaro, *Pringle*, n. 3599 (hb. Gray.); Morelos, in valleculis praeruptis montanis prope Cuernavacam, *Pringle*, n. 9843 (hb. Gray., hb. U. S. Nat. Mus.); *Holway*, n. 3509 (hb. Gray.); Yautepec, *Holway*, n. 5235 (hb. Gray.); Sinaloa, Lodiego, *Palmer* (anno 1891), n. 1587 (hb. Gray., hb. U. S. Nat. Mus.).

Forma **albiflorum**, forma nov., precedenti simillimum differt corollis albis.— MEXICO: Morelos, in collibus prope Yautepec, alt. 1220 m., *Pringle*, n. 9842 (hb. Gray., hb. U. S. Nat. Mus.).

Var. **euryphyllum**, var. nov., foliis late ovatis vel rhomboideo-ovatis obtusis grosse crenatis 4–6 cm. longis 3–4 cm. latis; corollis caeruleis glandulosis vix pilosis.— MEXICO: San Luis Potosi, alt. 1830–2440 m., *Parry & Palmer*, n. 315 (hb. Gray., hb. U. S. Nat. Mus.), n. 318 (hb. Gray., hb. U. S. Nat. Mus.), prope Alvarez, *Palmer* (anno 1902), n. 101 (hb. Gray., hb. U. S. Nat. Mus.); Nuevo Leon, Monclova, *Palmer* (anno 1880), n. 427 (hb. U. S. Nat. Mus.); Zacatecas, in montibus prope Plateado, *Rose*, n. 2739 (hb. Gray.); sine loco indicato, *Hartweg*, n. 142 (hb. Gray.).

Var. **jaliscense**, var. nov., foliis elliptico-lanceolatis breviter petiolatis 6–8 cm. longis 2.3–3 cm. latis grosse serratis vel crenato-dentatis vel etiam lobulatis firmiusculis scaberrimis reticulatis; corollis caeruleis glandulosis parce pilosis.— MEXICO: Jalisco ad Chapalam, *Palmer* (anno 1886), n. 715 (hb. Gray., hb. U. S. Nat. Mus.).

Forma **lactiflorum**, forma nov., precedenti simillimum differt corollis albis.— MEXICO: Jalisco, ad Tequilam, *Palmer* (anno 1886), no. 351 (hb. Gray., hb. U. S. Nat. Mus., hb. J. D. Sm.), ad Guadalajaram, n. 290 (hb. Gray., hb. U. S. Nat. Mus., hb. J. D. Sm.), via inter Huejuquilla et Mesquitec, *Rose*, n. 2585 (hb. Gray.).

Var. **longipetiolatum**, var. nov., foliis elongatis lanceolato-

triangularibus attenuatis basi plus minusve cuneatis integris supra basin grosse dupliceque crenato-dentatis ca. 8–10 cm. longis 3–4 cm. latis tenuibus non reticulatis subtus molliter tomentosis; petiolis usque ad 3 cm. longis; corollis glabriusculis albis.— MEXICO: in Chihuahua aust.-occ., *Palmer* (anno 1885), n. 110 (hb. Gray., hb. U. S. Nat. Mus., hb. J. D. Sm.).

Var. **subsetiferum**, var. nov., fruticosum ramosum; foliis ovatis 2–4 cm. longis 1.5–2.5 cm. latis obtusis vel acutiusculis crenato-serratis basi cuneato-angustatis brevissime petiolatis utrinque dilute viridibus scabridis; capitulis pro specie longiusculis; corollis caeruleis ex involucro valde exsertis; pappi corona flosculorum nonnullorum cum seta laevi corollam subaequanti instructa.— MEXICO: Zacatecas, prope Conception del Oro, *Palmer* (anno 1902), n. 382 (hb. Gray., hb. U. S. Nat. Mus.).

23. **A. elachycarpum**, spec. nov., fruticulosum gracile; caule tereti 1–2 mm. diametro a cortice griseo-brunnea tecto; ramis virgatis purpurascentibus crispe puberulis usque ad inflorescentiam foliosis; foliis oppositis tenuibus ovatis plerisque attenuato-acuminatis regulariter crenato-serratis 3-nerviis supra badio-viridibus pilosulis subtus pallidioribus griseo-tomentellis ca. 5 cm. longis ca. 2.5 cm. latis; corymbis compositis planiusculis; pedicellis 1–4 mm. longis; bracteolis setaceis; involucri hemisphaerici 4–5 mm. diametro 2.5–3 mm. alti squamis anguste lanceolatis attenuatis 2-costatis dorso crispe puberulis; corollis involucrum vix superantibus glandulari-atomiferis vix vel nullo modo pilosulis apicem versus violaceis; tubo proprio fauces campanulatas subaequilongo; achaeniis nigris 1.6 mm. longis glabris nitidis; pappi corona 0.2 mm. alta fere ad mediam partem 5-dentata albida.— *A. corymbosum* J. D. Sm. Enum. Pl. Guat. iv. 72 (1895), non Benth.— GUATEMALA: Santa Rosa, alt. 915 m., *Heyde & Lux* (distrib. J. D. Sm.), n. 4228 (hb. Gray., hb. U. S. Nat. Mus., hb. J. D. Sm.). Species *A. corymboso* gracilior differt etiam textura molliori foliorum, capitulis minoribus crassioribus quam altis, achaeniis multo minoribus, etc.

24. A. PETIOLATUM (Hook. & Arn.) Hemsl., perenne herbaceum vel suffruticosum ascendens foliosum; foliis oppositis vel supremis alternis ovatis obtusiusculis firmis glaberrimis crenato-serratis basi angustatis ad petioli insertionem cuneatis 6–9 cm. longis 2.5–4 cm. latis; petiolis gracilibus usque ad 3.6 cm. vel ultra longis; pedunculis longis terminalibus; corymbis parvis pauci-capitulatis; pedicellis erectis ad 2 cm. longis; bracteolis setaceis; capitulis 8 mm. diametro; involucri campanulati squamis anguste lanceolatis; corollis glaberri-

mis; pappo crateriformi dentato, dente uno hinc inde setifero ceteris vel omnibus muticis.— Biol. Cent.-Am. Bot. ii. 83 (1881). *Caelestina petiolata* Hook. & Arn. Bot. Beechy, 433 (1841). *Carelia petiolata* (Hook. & Arn.) Ktze. Rev. Gen. i. 325 (1891).— NICARAGUA: ad Realejo, *Sinclair* (hb. Kew., phot. in hb. Gray.). Species ut videtur numquam reperta, ob dentibus pappi hinc inde setiferis transitionem ad Sect. *Euageratum* monstrat.

25. A. SCABRIUSCULUM (Benth.) Hemsl., perenne herbaceum vel suffruticosum decumbens plus minusve ramosum 1.3–9 dm. altum primo aspectu glaberrimum tamen tactu plus minusve scabrum et vero minute pilosiusculum; caule ramisque gracilibus ascendentibus curvatis vel flexuosis foliosis; foliis oppositis ovatis saepius acuminatis serratis firmiusculis supra laete viridibus lucidis subtus dilutiore viridibus opacis punctatis 2–5 cm. longis 1–3.5 cm. latis; petiolis 5–11 mm. longis glandulari-pubescentibus; corymbis (1–)3–7-capitulatis simplicibus vel compositis longe pedunculatis; pedicellis filiformibus puberulis saepius ca. 1 cm. longis; capitulis ca. 7 mm. diametro ca. 75-floris; involucri squamis angustis acutissimis viridibus 2-costatis dorso crispe puberulis vel glabriusculis; corollis glaberrimis limbum versus caeruleis, tubo gracili fauces cylindratas subaequanti; achaeniis nigrescentibus glabris ca. 2 mm. longis; pappo crateriformi albido saepius 5-dentato 0.3 mm. longo.— Biol. Cent.-Am. Bot. ii. 83 (1881). *Coelestina corymbosa* Benth. Bot. Sulph. 111 (1844), pro parte, non DC. *C. scabriuscula* Benth. ex Oerst. Vidensk. Meddel. 1852, p. 72 (1852). *Carelia scabriuscula* (Benth.) Ktze. Rev. Gen. i. 325 (1891).— MEXICO: inter San Blas et Tepic, *Sinclair* (hb. Kew., phot. in hb. Gray.). GUATEMALA, *Friedrichsthal* f. Oerst. l. c. 73. COSTA RICA: in graminosis declivitatis occidentalis montis ignivomi El Vieja, alt. 610 m., *Oersted* (hb. Kew., phot. in hb. Gray.). NICARAGUA: *Wright* (hb. Gray., hb. U. S. Nat. Mus.), Masaya, *Baker*, n. 2220 (hb. Gray.).

26. A. LUCIDUM Robinson, fruticosum ramosum 4–5 dm. altum decumbens; caulibus nodosis flexuosis maturitate a cortice grisea tectis; ramis curvato-ascendentibus plerisque in media parte praesertim foliosis; foliis oppositis firmis ovatis acutis basi angustatis acute serratis 1.5–4.5 cm. longis 7–20 mm. latis glabriusculis vel plus minusve scabridis supra laete viridibus lucidis veniis prominulentibus albidis subtus dilutiore viridibus punctatis tenuiter reticulatis; corymbis laxis saepe compositis; capitulis pro genere majusculis 9–10 mm. diametro ca. 80-floris; involucri hemisphaerici squamis anguste lanceolatis attenuatis viridibus 2-costatis crispe puberulis; corollis albis

glandulari-atomiferis; achaeniis maturitate nigris 2 mm. longis glaberrimis; pappo crateriformi albido margine subintegro.— Proc. Am. Acad. xxxvi. 475 (1901).— MEXICO: in civitate Morelos in declivitatibus muscosis Sierrae de Tepoxtlan, alt. 2300 m., *Pringle*, n. 7851 (hb. Gray.), n. 8362 (hb. Gray., hb. J. D. Sm.), n. 9844 (hb. Gray., hb. U. S. Nat. Mus.), n. 13,022 (hb. Gray., hb. U. S. Nat. Mus.). Species precedenti arcte affinis differt habitu paullo lignescentiore, foliis reticulatis lucidis, corollis albis glandulari-granulosis, pappi corona subintegra.

27. A. SALICIFOLIUM Hemsl., perenne herbaceum vel distincte fruticosum laxe et subdichotome ramosum gracili 0.6–1.3 m. altum brevissime hirtellum scabriusculum; ramis virgatis; foliis oppositis (vel supremis alternis) anguste lanceolatis tenuibus vel saepius firmiusculis plus minusve reticulatis planis vel saepius conduplicatis 4–11 cm. longis 0.5–3.6 cm. latis obtuse subremoteque serrato-dentatis vel integriusculis utrinque laete viridibus; corymbis terminalibus saepius compositis et laxiusculis; capitulis, flosculis, achaeniis eis *A. corymbosi* simillimis.— Biol. Cent.-Am. Bot. ii. 83 (1881). *Coelestina corymbosa* Benth. Bot. Sulph. 111 (1844), pro parte, nec DC. *Ageratum strictum* Hemsl. l. c. (1881), ubi per errorem (ex sched. Galeottii introductum) annuum dictum. *Carelia salicifolia* et *C. stricta* (Hemsl.) Ktze. Rev. Gen. i. 325 (1891).— MEXICO: inter San Blas et Tepic, *Sinclair* (hb. Kew., phot. in hb. Gray.); Jalisco, prope Guadalajaram, *Palmer* (anno 1886), n. 289 partim (hb. Gray.), *Pringle*, n. 11,898 (hb. Gray.); Michoacan, ad Uruapam, *Galeotti*, n. 2451 (hb. Kew., phot. in hb. Gray.), ad Vallecito in terris argillaceis, *Langlassé*, n. 310 (hb. Gray.), forma vegetior; Morelos, in collibus supra Cuernavacam, *Pringle*, n. 6234 (hb. Gray., hb. U. S. Nat. Mus., hb. J. D. Sm.), nn. 9045, 9845 (hb. Gray., hb. U. S. Nat. Mus.).

NOTA.— Species quamquam plerumque facile recognoscenda tamen ab *A. corymboso* foliis longioribus angustioribus saepius viridioribus exceptis vix distinguenda. An potius ei varietas?

Species transferendae vel excludendae vel inquirendae.

A. adscendens Sch. Bip. = OXYLOBUS ADSCENDENS (Sch. Bip.) Robinson & Greenman.

A. Agrianthus O. Hoffm. in Engl. & Prantl, Nat. Pflanzenf. iv. Ab. 5, 134 (1890). *Agrianthus corymbosus* DC. Prod. vii. 266 (1838). *Ageratum corymbosum* (DC.) Benth. ["in Benth. & Hook. f. Gen. Pl. ii. 242 (1873)"] ex Bak. in Mart. Fl. Bras. vi. pt. 2, 196 (1876), non

Zuccag. Species ad TRICHOGONIAM approximans tamen ultius scrutanda.

A. album Willd. = A. CONYZOIDES, f. ALBUM (Willd.) Robinson.

A. alternifolium (Gardn.) Bak. in Mart. Fl. Bras. vi. pt. 2, 195 (1876). *Campuloclinum alternifolium* Gardn. in Hook. Lond. Jour. Bot. vi. 438 (1847). Species dubia ultius inquirenda.

A. altissimum L. Sp. Pl. ii. 839 (1753) = EUPATORIUM URTICAEFOLIUM Reichard. Vide Robinson, Proc. Am. Acad. xlii. 46 (1906).

A. angustifolium Spreng. Syst. iii. 446 (1826) = CALEA ANGUSTIFOLIA (Spreng.) Sch. Bip. ex Bak. in Mart. Fl. Bras. vi. pt. 3, 256 (1884).

A. aquaticum Roxb. Hort. Beng. 61 (1814) = ADENOSTEMMA LAVENIA (L.) Ktze. Rev. Gen. i. 304 (1891).

A. arbutifolium HBK. = OXYLOBUS ARBUTIFOLIUS (HBK.) Gray.

A. brachystephanum Regel = A. LATIFOLIUM Cav.

A. caeruleum Hort. Reg. Par. ex Lam. Dict. i. 54 (1783). Species dubia seu A. HOUSTONIANUM Mill. seu A. CONYZOIDES L.

A. callosum Wats. = ALOMIA CALLOSA (Wats.) Robinson.

A. campuloclinioides Bak. in Mart. Fl. Bras. vi. pt. 2, 196 (1876). Species ad TRICHOGONIAM approximans ultius scrutanda.

A. ciliare L. Sp. Pl. ii. 839 (1753). Species valde dubia non recognescenda fortasse forma A. CONYZOIDIS.

A. ciliare L., β Lour. Fl. Cochin. ii. 484 (1790). Omnino ignotum.

A. coelestinum Sims. = A. CORYMBOSUM Zuccag.

A. coeruleum Desf. Tab. 98 (1804), nomen.

A. coeruleum Sieber ex Bak. in Mart. Fl. Bras. pt. 2, 345 (1876) = EUPATORIUM MACROPHYLLUM L.

A. confertum (Gardn.) Benth. ex Bak. in Mart. Fl. Bras. vi. pt. 2, 195 (1876). *Decachaeta conferta* Gardn. in Hook. Lond. Jour. Bot. v. 463 (1846). *Carelia conferta* (Gardn.) Ktze. Rev. Gen. i. 325 (1891). Species ob pappo setiformi ex *Agerato* excludenda ultius scrutanda.

A. conspicuum Hort. ex C. Koch & Fint. Wochenschr. i. 33 (1858) = (ut dicitur) EUPATORIUM GLECHONOPHYLLUM Less.

A. conyzoides Sieber ex Steud. Nom. ed. 2, i. 37 (1841) = (f. Steud. l. c.) *Eupatorium repandum* Willd. i. e. E. CORYMBOSUM Aubl.

A. conyzoides α *obtusifolium* (Lam.) DC. l. c. = *A. coeruleum* Hort. Reg. Par. Vide supra.

A. conyzoides β *hirtum* (Lam.) DC. l. c. = A. CONYZOIDES L.

A. conyzoides γ *mexicanum* (Sims) DC. Prod. v. 108 (1836) = A. HOUSTONIANUM Mill.

A. conyzoides δ *cordifolium* (Roxb.) DC. l. c. Var. non certe constata

ex characteribus videtur forma parvi momenti A. CONYZOIDIS L. vel fortasse A. HOUSTONIANI Mill.

A. cordifolium Roxb. Fl. Ind. iii. 415 (1832). Vide supra (*A. conyzoides δ cordifolium* (Roxb.) DC.)

A. corymbosum (DC.) Benth. Vide supra (*A. Agrianthus* O. Hoffm.).

A. corymbosum Zuccag., var. *St. Antonii* Sch. Bip. ex Klatt, Leopoldina, xx. 75 (1884). Nomen.

A. echioides (Less.) Hemsl. = ALOMIA ECHIOIDES (Less.) Robinson.

A. febrifugum Sesse ex DC. Prod. v. 104 (1836) = PIQUERIA TRINERVIA Cav.

A. glanduliferum Sch. Bip. = OXYLOBUS GLANDULIFERUS (Sch. Bip.) Gray.

A. glanduliferum Sch. Bip., var. *albiflorum* Sch. Bip. = OXYLOBUS GLANDULIFERUS (Sch. Bip.) Gray, typicus.

A. guianense Aubl. Guian. ii. 800 (1775) = EUPATORIUM MACROPHYLLUM L.

A. heterolepis Bak. = ALOMIA HETEROLEPIS (Bak.) Robinson.

A. hirsutum Poir. Suppl. i. 242 (1810), sphalm. pro *hirtum* = A. CONYZOIDES L.

A. hirtum Lam. = A. CONYZOIDES L.

A. humile Salisb. Prod. 188 (1796) = A. CONYZOIDES L.

A. intermedium Hemsl. = A. MARITIMUM HBK., var. INTERMEDIUM (Hemsl.) Robinson.

A. isocarphoides (DC.) Hemsl. = ALOMIA ISOCARPHOIDES (DC.) Robinson.

A. Lasseauxii Carr. Rev. Hort. xlii. 90 (1870) cum icone pessima. *Conoclinium Lasseauxii* Carr. in Dur. Ind. Sem. Hort. Burdig. 1872, p. 15 (1872) = EUPATORIUM LASSEAUXII Carr. l. c.

A. latifolium (Benth.) Hemsl. = A. OERSTEDII Robinson et A. RUGOSUM Coult.

A. lineare Cav. Ic. iii. 3, t. 205 (1795) = PALAFOXIA LINEARIS (Cav.) Lag.

A. longifolium (Gardn.) Benth. = ALOMIA LONGIFOLIA (Gardn.) Robinson.

A. maritimum HBK. β Sch. Bip. = A. LATIFOLIUM Cav.

A. matricarioides (Spreng.) Less. Syn. Comp. 155 (1832) = PHANIA MATRICARIOIDES (Spreng.) Griseb.

A. melissaefolium DC. Prod. v. 109 (1836), excl. syn. *Chrysocoma pauciflora* Arrab [Vellozo]. Species ad TRICHOGONIAM valde approximans ultius scrutanda.

A. mexicanum Sims, Bot. Mag. t. 2524 (1825) = A. HOUSTONIANUM Mill.

A. microcarpum (Benth.) Hemsl. = ALOMIA MICROCARPA (Benth.) Robinson.

A. microcephalum Hemsl. = ALOMIA MICROCEPHALA (Hemsl.) Robinson.

A. microphyllum Sch. Bip. in Seemann, Bot. Herald, 298 (1856) = AGERATELLA MICROPHYLLA (Sch. Bip.) Gray.

A. muticum Griseb. = A. LATIFOLIUM Cav.

A. nanum Hort. ex Sch. Bip. in C. Koch & Fint. Wochensch. i. Garten-Nachr. 26 (1858) = (ex Hook. f. & Jacks. Ind. Kew. i. 58) A. SUFFRUTICOSUM Regel.

A. obtusifolium Lam. Dict. i. 54 (1783). Species non constata verisimiliter seu A. CONYZOIDES L. seu A. HOUSTONIANUM Mill.

A. odoratum Vilm. Fl. Pl. Terre, ed. 2, 42 (1866) = A. CONYZOIDES L.

A. paniculatum Hort. ex Steud. Nom. ed. 2, i. 609 (1840) = BRICKELLIA PANICULATA (Mill.) Robinson, Proc. Am. Acad. xlii. 48 (1906).

A. pedatum Ort. Hort. Matr. Dec. 38 (1797) = FLORESTINA PEDATA (Cav.) Cass.

A. Pohlianum Bak. in Mart. Fl. Bras. vi. pt. 2, 197 (1876). Species minime cognita ob pappi paleis setiformibus et involucri squamis pluriseriatim imbricatis certe ex genere expellenda et ultius scrutanda.

A. punctatum Jacq. Hort. Schönb. iii. 28, t. 300 (1798) = STEVIA SERRATA Cav.

A. punctatum Ort. Hort. Matr. Dec. 37 (1797) = STEVIA PUNCTATA (Ort.) Pers.

A. purpureum Aubl. Pl. Guian. ii. 800 (1775) Species nunquam recognita verisimiliter *Eupatorii* species ut *A. guianense* Aubl.

A. purpureum Sesse ex DC. Prod. v. 122 (1836) = STEVIA VISCIDA HBK.

A. quadriflorum Blanco, Fl. Filip. 624 (1837) = ELEPHANTOPUS SPICATUS B. Juss. fide Villarii in Blanco, Fl. Filip. ed. 3, Nov. Append. 114 (1880).

A. rhytidophyllum Robinson = A. PALEACEUM (Gay) Hemsl.

A. rubens Viviani, Elench. Pl. Hort. Dinegro, 9 (1802). Species neglecta et obscura mihi omnino ignota.

A. serratum Glaziou, Bull. Soc. Bot. Fr. lvi, mém. 3d, 382 (1909), nomen subnudum.

A. sessilifolium Schauer, Linnaea, xix. 715 (1847) = TRICHOCORONIS SESSILIFOLIA (Schauer) Robinson, Proc. Am. Acad. xlii. 35 (1906).

A. strictum Hemsl. = A. SALICIFOLIUM Hemsl.

A. strictum Sims, Bot. Mag. t. 2410 (1823) = ADENOSTEMMA LAVENIA (L.) Ktze.

A. viscosum Ort. Dec. 36 (1797) = STEVIA SALICIFOLIA Cav.

A. Wrightii Torr. & Gray ex Gray Proc. Am. Acad. i. 46 (1848) = TRICHOCORONIS WRIGHTII (Torr. & Gray) Gray, Pl. Fendl. 65 (1849).

3. REVISION OF THE GENUS OXYLOBUS.

The claims of *Oxylobus* Moc. to generic rank rest quite as much upon habit and peculiar habitat as upon readily stated technical distinctions, yet they seem adequate. This small group of three well marked and obviously related species differ from all the Ageratums in being high alpine plants with thickish evergreen leaves. If a very doubtful report of one of them from Venezuela is excepted, they are confined to certain of the highest mountains of southern Mexico being found about at the timber line in borders of coniferous woods. The commonest of the three, *O. arbutifolius*, first described by Kunth as an *Ageratum*, was placed in *Phania* by DeCandolle, but is clearly distinct from that genus by the presence of a well developed apical appendage on the anthers. DeCandolle associated with it a second supposed species, his *Phania trinervia*, known to him only from one of Mociño's sketches. This second species has long remained vague, though Hemsley, Biol. Cent.-Am. Bot. ii. (1881), surmised its probable identity with the earlier species of Kunth. To the writer it seems that this identity may now be stated with definiteness. The tracing of Mociño's sketch, reproduced in the Calques des Dessins, shows no difference which may not be readily explained by the crudeness of the draftsmanship. The portion of Mexico in question has in recent years been diligently and effectively explored by several highly trained collectors without the discovery of any second species of just this habit. Finally it may be remarked that the eldest DeCandolle appears to have known the Mexican flora chiefly from the collections of Mociño & Sesse, Lagasca, Mendez, Née, and Haenke and on several occasions redescribed unconsciously the species of Kunth, seeming never to have had adequate opportunities to examine the series of plants collected by Humboldt and Bonpland.

The type of *O. glanduliferus* presents a curious confusion of more technical than practical importance. The species was first distinguished and named, though not described, by Schultz-Bipontinus, who on herbarium sheets noted a typical bluish-flowered form and a white-flowered condition, which he labelled var. *albiflorum* Sch. Bip. It was this white-flowered variety which Hemsley later described as *Ageratum glanduliferum* Sch. Bip. and which accordingly becomes ipso facto the

type of the species. Further collection may show the two forms sufficiently marked to make it worth while to distinguish them by name, in which event it would be the blue-flowered one which would have to be given a new designation thus reversing the treatment of Schultz, the original author, whose manuscript names, though critical have no nomenclatorial status since unaccompanied by published descriptions. However, the distinction seems to be here scarcely of taxonomic moment. The bluish color appears to be in this genus paler and in drying much less permanent than in *Ageratum* or *Alomia* so that in any but very fresh or recent and carefully dried material a sharp distinction would scarcely be possible.

The technical distinctions of *Oxylobus* are chiefly in the form of the corolla, which has a relatively slenderer proper tube than is usual in *Ageratum* and a more ample and abruptly expanded throat. The lobes of the limb are not so uniformly acute as the generic name would suggest, yet they are longer and more widely spreading than in the nearly related genera. The pappus is uniformly short and its scales are so deeply and irregularly cleft that their number, though not large, becomes indefinite.

OXYLOBUS Moc. (Nomen ab ὀξύς, *acutus*, et λοβός, *lobus*, dentes corollae limbi alludens.) Capitula homogama parva vel mediocria. Involucrum subcylindrati- vel infundibuliformi-campanulatum, squamis ovato- vel lanceolato-oblongis acutis dorso glandulari-tomentellis subherbaceis, costis pluribus obscuris vel nullis. Receptaculum planiusculum nudum. Corollae tubus proprius gracilis, faucibus campanulato-cylindratis abrupte ampliatis, limbi dentibus oblongis vel anguste ovatis plerisque acutiusculis patentibus. Antherae apice cum appendice membranacea ovata munitae basi rotundatae. Achaenia graciliter prismatica 5-angularia deorsum leviter decrescentia in angulis sursum scabrata basi callosa. Pappus e squamulis 5–10 inaequalibus plerisque acutis et fimbriatis compositus achaenio multo brevior.— Moc. ex DC. Prod. v. 115 (1836); Gray, Proc. Am. Acad. xv. 25 (1879); Klatt, Leopoldina, xx. 75 (1884); Robinson & Greenman, Proc. Am. Acad. xli. 272 (1905). *Phania* Sect. *Oxylobus* (Moc.) DC. Prod. v. 115 (1836); Endl. Gen. 367 (1838). Ad *Ageratum* allocatus, Benth. & Hook. f. Gen. ii. 242 (1873); Hemsl. Biol. Cent.-Am. Bot. ii. 80 (1881); Hoffm. in Engl. & Prantl, Nat. Pflanzenf. iv. Ab. 5, 137 (1890). In *Careliam* injectus, Ktze. Rev. Gen. i. 325 (1891). — Suffrutices decumbentes ramosi vel simplices. Folia opposita subcoriacea sempervirentia obtusa crenulata tenuiter reticulato-

venosa impunctata. Capitula in cymis compositis congestim vel laxiuscule disposita.— Species 3, omnes in regione alto-alpina montium austro-menicanorum incolae, una ut dicitur etiam in Venezuela reperta sit.

Clavis specierum.

Capitula ca. 20-flora. Folia elliptica subsessilia parva 1–2 cm. longa ..... 1. *O. arbutifolius.*
Capitula ca. 75-flora. Folia oblonga basi abrupte rotundata, inferioribus bene petiolatis ..... 2. *O. glanduliferus.*
Capitula ca 35-flora. Folia spatulata basi attenuata ..... 3. *O. adscendens.*

1. O. ARBUTIFOLIUS (HBK.) Gray, decumbens laxe caespitosus; caulibus flexuosis; ramis curvato-ascendentibus foliosissimis 1–6 dm. longis simplicibus vel ramosis teretibus saepius purpurascentibus glanduloso-tomentellis, internodiis inferioribus brevissimis 2–3 supremis longioribus usque ad 2–5 cm. longitudine; foliis ellipticis 8–19 mm. longis 3.5–10 mm. latis crenulato-serratis plus minusve praesertim marginem versus glandulari-puberulis supra viridibus subtus paullo pallidioribus venulosis; cymis 3–12-capitulatis 3–5 cm. diametro, pedicellis ascendentibus rectis filiformibus 6–20 mm. longis; capitulis ca. 20-floris; involucro subcylindrati-campanulato 4 mm. diametro 5 mm. alto, squamis exterioribus lanceolati-oblongis acutis dorso glandulari-tomentellis, interioribus angustioribus; corollis glabris 3.5 mm. longis, tubo proprio 1.6 mm. longo fauces subcylindratas aequanti; achaeniis plerisque arcuatis basin versus decrescentibus angulis sursum scabratis; pappi squamulis oblongis vel linearibus fimbriatis 0.7 mm. longis.— Proc. Am. Acad. xv. 26 (1879). *Ageratum arbutifolium* HBK. Nov. Gen. et Spec. iv. 149 (1820). *Phania arbutifolia* (HBK.) DC. Prod. v. 115 (1836). *P. trinervia* (Moc.) DC. l. c. (1836); A. DC. Calq. des Dess. t. 527 (1874). *Carelia arbutifolia* (HBK.) Ktze. Rev. Gen. i. 325 (1890).— MEXICO: in monte igniv. Nauhcampatepetl, alt. 3100 m., *Humboldt & Bonpland;* in monte Orizaba, *Galeotti*, n. 2159 (hb. Kew.), *Linden*, n. 1121 (hb. Kew.), alt. 3050 m., *Liebmann*, n. 212 (hb. Gray.), alt. 3300–3600 m., *Liebmann*, n. 76 (hb. Gray.); alt. 3965 m., *Seaton*, n. 237 (hb. Gray.); alt. 4020 m., *Nelson*, n. 286 (hb. Gray., hb. J. D. Sm.); in silvis coniferis, alt. 3500 m., *Pringle*, n. 8555 (hb. Gray., hb. J. D. Sm.); in diclivitate montis Orizabae, *Rose & Hay*, nn. 5738, 5760 (hb. Gray.), alt. 2750–3800 m., *Liebmann*, n. 213 f. Hemsl. l. c., in saxis prope marginem superiorem silvarum, Ixtaccihuatl, alt. 3300–3600 m., *Purpus*, n. 187 (hb. Gray.), in saxis supra silvas, *Purpus*, n. 1567 (hb. Gray.), in saxis humidis, Citlaltepetl, alt. 3050–3350 m., *Purpus*, n.

2767 (hb. Gray.); in rupibus frigidulis Sierrae de las Cruces, *Pringle*, n. 4290 (hb. Gray.); in monte igniv. Popocatepetl in regione pinorum, *Galeotti*, n. 2380 (hb. Kew.).

2. O. GLANDULIFERUS (Sch. Bip.) Gray, suffrutex ramosus 1–1.3 m. altus sordide glanduloso-tomentosus; ramis ascendentibus foliosis, internodiis superioribus 3–5 cm. longis inferioribus vix 1 cm. longis; foliis inferioribus oblongis obtusis basi subtruncatis vel abrupte rotundatis crenatis utrinque viridibus pilosellis margine glandulari-tomentellis 2–3 cm. longis 1–1.8 cm. latis ad 7 mm. longe petiolatis, foliis superioribus basi subcuneato-angustatis subsessilibus; cymis compositis trichotomis paucicapitulatis; capitulis majusculis ca. 75-floris; involucri plus minusve 5-angulati 6 mm. diametro et alti squamis exterioribus ovato-oblongis acuminatis glanduloso-puberulis ca. 7 mm. longis; interioribus oblanceolato-linearibus; corollis 5.6 mm. longis, tubo proprio ca. 2 mm. longo ad junctionem faucium pilosulo, faucibus infundibuliformibus ca. 2 mm. altis, dentibus limbi 1.6 mm. longis oblongis acutiusculis; achaeniis gracilibus 3–3.5 mm. longis; pappi squamulis 5 vel pluribus oblongis 0.7 mm. longis margine laceratis basi plus minusve connatis.— Proc. Am. Acad. xv. 26 (1879), sine char.; Klatt, Leopoldina, xx. 75 (1884). *Ageratum glanduliferum* Sch. Bip. ex Hemsl. Biol. Cent.-Am. Bot. ii. 82 (1881), ubi descriptum. *A. glanduliferum*, var. *albiflorum* Sch. Bip. ex Gray, l. c. *Oxylobus glanduliferus*, var. *albiflorus* (Sch. Bip.) Klatt, l. c. *Carelia glandulifera* (Sch. Bip.) Ktze. Rev. Gen. i. 325 (1891). — MEXICO: Sempoaltepec, *Liebmann*, n. 238 (hb. Gray.), specimen typicum, i. e. specimen a quo descriptio principalis a cl. Hemsleyo derivata est (= etiam var. *albiflorum* Sch. Bip.); Oaxaca, prope Sierram de San Felipe, alt. 2900–3350 m., *Nelson*, n. 1112 (hb. Gray.), in summis rupibus, Sierra de San Felipe, alt. 3175 m., *Pringle*, n. 4833 (hb. Gray., hb. J. D. Sm.); sine loco indicato, *Linden*, n. 1155 f. Klatt.

Nota.— Specimen in hb. Kew. ex "Venezuela &c., *Funcke & Schlim*, n. 1155" videtur fortasse lapsu pennae vel transpositione schedularum pro *Linden*, n. 1155, specimen verum hujus species ut videtur ex regione normali mexicana. Idem est sine dubitatione id quod cl. Hemsleyius, l. c. 82, "*Fendler*, n. 1155" per errorem scripsit. Species ergo in Venezuela adhuc non certe demonstrata.

3. O. ADSCENDENS (Sch. Bip.) Robinson & Greenman, perennis decumbens subherbaceus 2.5–5 dm. altus basi prostratus radicans foliosus; caule tereti curvato-ascendenti, internodiis erectis 3–4 longis usque ad 1–2 dm. longitudine glanduloso-puberulis; foliis imis spatulatis 3–4 cm. longis 1–2 cm. latis crenulatis basi in petiolum ad 1.5 cm. longum cuneatim attenuatis supra laete viridibus subtus pallide

viridibus venulosis glabriusculis; foliis caulinis oppositis remotis oblanceolato-oblongis sessibilus margine glanduloso-puberulis; cymis terminalibus compositis densis ca. 4 cm. diametro; capitulis ca. 35-floris; involucri 5–6 diametro aeque alti squamis exterioribus anguste oblongis acutis dorso sordide glanduloso-tomentosis interioribus linearibus; corollis 3–7 mm. longis glabris, tubo proprio 1.5 mm. longo fauces campanulatas aequanti; achaeniis 2.8 mm. longis deorsum leviter decrescentibus in angulis sursum scabratis; pappi squamulis pluribus angustis fimbriatis 0.5 mm. longis.— Proc. Am. Acad. xli. 272 (1905). *Ageratum adscendens* Sch. Bip. ex Benth. & Hook. f. Gen. ii. 242 (1873), nomen; Hemsl. Biol. Cent.-Am. Bot. ii. 80 (1881), ubi descriptum; Klatt, Leopoldina, xx. 75 (1884). *Carelia adscendens* (Sch. Bip.) Ktze. Rev. Gen. i. 325 (1891).— MEXICO: in monte Orizaba ad Vaqueriam de Jacal, alt. 3050–3660 m., *Liebmann*, n. 214 (hb. Kew., hb. Gray.); alt. 3660 m., *Linden*, n. 489 (hb. Kew.); Puebla, in monte igniv. Ixtaccihuatl in graminosis prope marginem superiorem silvarum, *Purpus*, n. 1497 (hb. Gray., hb. U. S. Nat. Mus.); in civitate Mexico, in pascuis altis Deserto Viejo, *Bourgeau*, n. 839 (hb. Kew., hb. Gray.), in Serrania de Ajusco in declivitatibus patentibus, alt. 2300 m., *Pringle*, n. 6612 (hb. Gray., hb. U. S. Nat. Mus., hb. J. D. Sm.); Hidalgo, in graminosis humidis Sierrae de Pachuca, alt. 3050., *Pringle*, n. 9841 (hb Gray., hb. U. S. Nat. Mus.); Verz Cruz, in Cordillera, *Galeotti*, n. 2160 (hb. Kew.); sine loco indicato, *Ehrenberg*, n. 463a (hb. U. S. Nat. Mus.).

INDEX EXSICCATARUM.

Ag. = Ageratum. Al. = Alomia. Ox. = Oxylobus.

ABBOTT, *Ag. conyzoides* L.
ALVAREZ, 751 = *Ag. albidum* (DC.) Hemsl.
ANDERSSON, *Ag. latifolium* Cav., v. *galapageium* Robinson.
ANDRIEUX, 287 = *Ag. paleaceum* (Gay) Hemsl.; 543 = *Ag. albidum* (DC.) Hemsl.
BAKER, 2021 = *Ag. conyzoides* L.; 2220 = *Ag. scabriusculum* (Benth.) Hemsl.
BALL, *Ag. conyzoides* L.
BANG, 407 partim = *Ag. conyzoides* L., partim = *Ag. conyzoides* L., v. *inaequipaleaceum* Hieron.
BAUR, *Ag. latifolium* Cav., v. *galapageium* Robinson.
BENNETT, *Ag. littorale* Gray.
BERTERO, *Ag. domingense* Spreng.
BEYRICH, *Ag. conyzoides* L., *Ag. fastigiata* (Gardn.) Benth.
BILIMEK, 488, 579 = *Al. alata* Hemsl.
BINOT, 15 = *Ag. conyzoides* L.
BLANCHET, 2754 = *Al. foliosa* (Gardn.) Benth. & Hook. f.; 3123 = *Al. heterolepis* (Bak.) Robinson; 3700 = *Ag. micropappum* Bak.
BLODGET, *Ag. littorale* Gray.
BOTTERI, 623 = *Al. echioides* (Less.) Robinson.
BOTTERI & SUMICRAST, 524 = *Al. isocarphoides* (DC.) Robinson.
BOURGEAU, 719 = *Ag. corymbosum* Zuccag.; 839 = *Ox. adscendens* (Sch. Bip.) Robinson & Greenman; 1216 = *Al. alata* Hemsl.; 1557 =

Ag. Houstonianum Mill.; 2393, 3207 = *Al. echioides* (Less.) Robinson.

BRANDEGEE, *Ag. corymbosum* Zuccag.

BRENES, 14, 491 = *Ag. Oerstedii* Robinson.

BRITTON, E. G., 6375 = *Ag. conyzoides* L., v. *inaequipaleaceum* Hieron.; sine num. *Ag. latifolium* Cav.

BRITTON & COWELL, 927 = *Ag. conyzoides* L.

BRITTON & MILLSPAUGH, 2240 = Ag. *latifolium* Cav.

BROADWAY, *Ag. conyzoides* L.

BROWN & BROWN, 31a, 51 = *Ag. conyzoides* L.; 254 = *Ag. Houstonianum* Mill.

BRUNET, 24 = *Al. fastigiata* (Gardn.) Benth.

BUCHANAN, 740 = *Ag. conyzoides* L.

BUCHTIEN, 1456 = *Ag. conyzoides* L.

BURCHELL, 854 = *Ag. conyzoides* L.

CHAPMAN, 49 = *Ag. littorale* Gray.

CHATTERJEE, *Ag. Houstonianum* Mill.

CLAUSSEN, *Al. foliosa* (Gardn.) Benth. & Hook. f.

CLUTE, 190 = *Ag. Houstonianum* Mill.

COMBS, 59 = *Ag. conyzoides* L.

CONZATTI & GONZÁLEZ, 542 = *Ag. albidum* (DC.) Hemsl.

COOK & DOYLE, 277 = *Al. microcarpa* (Benth.) Robinson.

COOK & GRIGGS, 560 = *Ag. conyzoides* L.

COOPER (distrib. J. D. Sm.), 5824 = *Ag. conyzoides* L.

COULTER, 247, 248 = *Ag. corymbosum* Zuccag.

CUMING, 2362, 2419 = *Ag. conyzoides* L.

CURTISS, 77 = *Ag. conyzoides* L., v. *inaequipaleaceum* Hieron.; 650 = *Ag. maritimum* HBK.; 1163, 5446 = *Ag. littorale* Gray.

DARWIN, *Ag. latifolium* Cav., v. *galapageium* Robinson.

DEAM, 330 = *Ag. conyzoides* L.; 6169 = *Ag. rugosum* Coult.; 6208 = *Ag. rugosum* Coult.?

DRILL, *Ag. conyzoides* L.

DUGÈS, 24, 426 = *Ag. corymbosum* Zuccag.

DUSS, 934, 2520, 4681 partim = *Ag. conyzoides* L.; 4681 partim = *Ag. Houstonianum* Mill.

EGGERS, 303 = *Ag. conyzoides* L.; 3445 = *Ag. Houstonianum* Mill.

EHRENBERG, 463a = *Ox. adscendens* (Sch. Bip.) Robinson & Greenman.

ERVENDBERG, 100 = *Ag. Houstonianum* Mill.

EVERETT, 16 = *Ag. conyzoides* L.

FENDLER, 652 = *Ag. conyzoides* L.

FRIEDRICHSTHAL, *Ag. scabriusculum* (Benth.) Hemsl.

FUERTES, 458 = *Ag. latifolium* Cav.

GALEOTTI, 2098 = *Al. microcephala* (Hemsl.) Robinson; 2159 = *Ox. arbutifolius* (HBK.) Gray; 2160 = *Ox. adscendens* (Sch. Bip.) Robinson & Greenman; 2200 = *Al. echioides* (Less.) Robinson; 2202 = *Ag. tomentosum* (Benth.) Hemsl.; 2380 = *Ox. arbutifolius* (HBK.) Gray; 2451 = *Ag. salicifolium* Hemsl.

GARBER, *Ag. littorale* Gray.

GARDNER, 3809 = *Al. angustata* Gardn.) Benth.; 3810 = *Al. cinerea* (Gardn.) Benth.; 4837 = *Al. fastigiata* (Gardn.) Benth.; 4838 = *Al. foliosa* (Gardn.) Benth. & Hook. f.; 4863 = *Al. longifolia* (Gardn.) Robinson.

GAUDICHAUD, 106 = *Ag. latifolium* Cav.

GAUMER, 1 = *Ag. littorale* Gray, v. *hondurense* Robinson; 20 = *Ag. maritimum* HBK., f. *calvum* Robinson; 93 = *Ag. maritimum* HBK., v. *intermedium* (Hemsl.) Robinson; 395 = *Ag. Gaumeri* Robinson; sine num. = partim *Ag. littorale* Gray, v. *hondurense* Robinson, partim *Ag. littorale* Gray, v. *hondurense* Robinson, f. *setigerum* Robinson.

GHIESBREGHT, 111, 547 = *Ag. tomentosum* (Benth.) Hemsl.

GLAZIOU, 10,980 = *Al. myriadenia* (Sch. Bip.) Bak.; 21,579 = *Al. dubia* Robinson.

GOLL, 114 = *Ag. rugosum* Coult.? 238 = *Ag. Houstonianum* Mill.

GREGG, 372 = *Ag. corymbosum* Zuccag.

GUILLEMIN-TARAYRE, *Ag. corymbosum* Zuccag.

HAENKE, *Al. isocarphoides* (DC.) Robinson.

HAHN, 1190 = *Ag. conyzoides* L.

HARTWEG, 142 = *Ag. corymbosum* Zuccag., v. *euryphyllum* Robinson.

HELLER, 542, 1999, 6143; = *Ag. conyzoides* L.
HENRY, 9094 = *Ag. conyzoides* L.
HEYDE, 530 = *Ag. conyzoides* L.
HEYDE & LUX (distrib. J. D. Sm.), 3781 = *Ag. conyzoides* L.; 4228 = *Ag. elachycarpum* Robinson; 4243 = *Ag. rugosum* Coult.; 6153 = *Al. guatemalensis* Robinson.
HILDEBRANDT, 3304a, 3500 = *Ag. conyzoides* L.
HOLST, 8860 = *Ag. conyzoides* L.
HOLWAY, 3509, 5235 = *Ag. corymbosum* Zuccag., v. *latifolium* (DC.) Robinson.
HOOKER f., *Ag. conyzoides* L.
HOOKER f. & THOMPSON, *Ag. conyzoides* L.
HUMBOLDT & BONPLAND, 1273 = *Ag. maritimum* HBK.; 3949 = *Al. ageratoides* HBK.; sine num. *Ag. corymbosum* Zuccag., v. *latifolium* (DC.) Robinson, *Ox. arbutifolius* (HBK.) Gray.
JOAD, *Ag. conyzoides* L.
JENMAN, 5398 = *Ag. conyzoides* L.
KING (legulus cl. Kingii), 11 = *Ag. conyzoides* L.
KOTSCHY, 327 = *Ag. conyzoides* L.
KRALIK, *Ag. conyzoides* L.
KUNTZE, *Al. fastigiata* (Gardn.) Benth.
LANGLASSÉ, 310 = *Ag. salicifolium* Hemsl.
LEHMANN, 3600, 3601, 4666 = *Ag. conyzoides* L., v. *inaequipaleaceum* Hieron.
LIEBMANN, 76 = *Ox. arbutifolius* (HBK.) Gray; 82, 83, 84 = *Al. ageratoides* HBK.; 143, 144 = *Al. echioides* (Less.) Robinson; 147 = *Al. Wendlandii* (Sch. Bip.) Robinson; 212, 213 = *Ox. arbutifolius* (HBK.) Gray; 214 = *Ox. adscendens* (Sch. Bip.) Robinson & Greenman; 238 = *Ox. glanduliferus* (Sch. Bip.) Gray.
LINDEN, 349 = *Al. microcarpa* (Benth.) Robinson? 489 = *Ox. adscendens* (Sch. Bip.) Robinson & Greenman; 1121 = *Ox. arbutifolius* (HBK.) Gray; 1155 = *Ox. glanduliferus* (Sch. Bip.) Gray; 1156 = *Al. echioides* (Less.) Robinson; 1185 = *Ag. tomentosum* (Benth.) Hemsl.
LUND, *Al. fastigiata* (Gardn.) Benth.
LUSCHNATH, *Ag. conyzoides* L.
MALME, 1678 = *Al. Regnellii* Malme.
MARCH, *Ag. latifolium* Cav.
MARTIUS, 672 = *Ag. conyzoides* L.
MAXON & HAY, 3487 = *Ag. conyzoides* L.
MERRILL, 35, 563, 1955 = *Ag. conyzoides* L.
MOORE, 469 = *Ag. conyzoides* L.
MÜLLER, 1129 = *Al. echioides* (Less.) Robinson.
NÉE, *Ag. latifolium* Cav.
NELSON, 286 = *Ox. arbutifolius* (HBK.) Gray; 858 = *Al. microcephala* (Hemsl.) Robinson; 991 = *Ag. stachyofolium* Robinson; 1112 = *Ox. glanduliferus* (Sch. Bip.) Gray; 1208 = *Ag. albidum* (DC.) Hemsl.; 1213 = *Ag. tomentosum* (Benth.) Hemsl.; 1446 = *Ag. paleaceum* (Gay) Hemsl.; 2822a = *Ag. albidum* (DC.) Hemsl., v. *Nelsonii* Robinson; 3528 = *Al. platylepis* Robinson; 3542 = *Ag. conyzoides* L.; 5006 = *Ag. corymbosum* Zuccag.
NICHOLS, 33 = *Ag. Houstonianum* Mill.
OERSTED, 241, 247, 248 = *Al. microcarpa* (Benth.) Robinson; 251 = *Ag. Oerstedii* Robinson; sine num. = partim *Ag. scabriusculum* (Benth.) Hemsl., partim *Ag. tomentosum* (Benth.) Hemsl.
PALMER (anno 1874) 192 = *Ag. littorale* Gray; (anno 1880) 427 partim = *Ag. corymbosum* Zuccag., v. *europhyllum* Robinson; 427 partim, 428 = *Ag. corymbosum* Zuccag.; (anno 1885) 31 = *Ag. corymbosum* Zuccag., f. *album* Robinson; 110 = *Ag. corymbosum* Zuccag., v. *longipetiolatum* Robinson; (anno 1886) 289 = partim *Ag. corymbosum* Zuccag., partim *Ag. salicifolium* Hemsl.; 290, 351 = *Ag. corymbosum* Zuccag., v. *jaliscense* Robinson, f. *lactiflorum* Robinson; 437 partim = *Ag. platypodum* Robinson; 715 = *Ag. corymbosum* Zuccag., v. *jaliscense* Robinson; (anno 1891) 1587 = *Ag. corymbosum*, v. *latifolium* (DC.) Robinson; (anno 1892) 1834 = *Ag. latifolium* Cav.; 1850, 1890 = *Ag. conyzoides* L.; 2066 = *Ag. Houstonianum* Mill.; (anno 1896) 506 = *Ag. corymbosum* Zuccag.;

(anno 1898) 307 = *Ag. corymbosum* Zuccag.; (anno 1902) 101 = *Ag. corymbosum* Zuccag., v. *euryphyllum* Robinson; 382 = *Ag. corymbosum* Zuccag., v. *subsetiferum* Robinson; (anno 1904) 154½, 387 = *Ag. corymbosum* Zuccag.; (anno 1906) 486 = *Ag. corymbosum* Zuccag.

PALMER & RILEY, 65 = *Ag. Houstonianum* Mill.; 712, 739 = *Ag. maritimum* HBK.; 1068 = *Ag. conyzoides* L.

PARRY & PALMER, 315 = *Ag. corymbosum* Zuccag., v. *euryphyllum* Robinson; 317 = *Ag. corymbosum* Zuccag.; 318 = *Ag. corymbosum* Zuccag., v. *euryphyllum* Robinson.

PECK, 80 = *Ag. Peckii* Robinson; 99 = *Ag. radicans* Robinson.

PITTIER, 1891 = *Ag. conyzoides* L.; 2390, 3415, 3533, 4139 = *Al. microcarpa* (Benth.) Robinson; 4914 = *Ag. riparium* Robinson; 6995 = *Ag. Houstonianum* Mill.

POHL, 358 = *Al. Pohlii* (Sch. Bip.) Bak.; 371, 535 = *Al. fastigiata* (Gardn.) Benth.; 669 = *Al. foliosa* (Gardn.) Benth & Hook. f.

POLLARD, COLLINS & MORRIS, 12 = *Ag. littorale* Gray.

PRINGLE, 669 = partim *Ag. corymbosum* Zuccag., partim *Ag. corymbosum* Zuccag., f. *album* Robinson; 2166 = *Al. callosa* (Wats.) Robinson; 3599 = *Ag. corymbosum* Zuccag., v. *latifolium* (DC.) Robinson; 4290 = *Ox. arbutifolius* (HBK.) Gray; 4739 = *Al. callosa* (Wats.) Robinson; 4816 = *Ag. albidum* (DC.) Hemsl.; 4833 = *Ox. glanduliferus* (Sch. Bip.) Gray; 5675 = *Ag. paleaceum* (Gay) Hemsl.; 5786 = *Ag. tomentosum* (Benth.) Hemsl.; 6177 = *Ag. paleaceum* (Gay) Hemsl.; 6229 = *Al. alata* Hemsl.; 6234 = *Ag. salicifolium* Hemsl.; 6267 = *Ag. tomentosum* (Benth.) Hemsl.; 6612 = *Ox. adscendens* (Sch. Bip.) Robinson & Greenman; 6754 = *Ag. tomentosum* (Benth.) Hemsl.; 7851 = *Ag. lucidum* Robinson; 8065 = *Ag. Houstonianum* Mill.; 8362 = *Ag. lucidum* Robinson; 8555 = *Ox. arbutifolius* (HBK.) Gray; 9045 = *Ag. salicifolium* Hemsl.; 9047 = *Ag. corymbosum* Zuccag.; 9353 = *Al. callosa* (Wats.) Robinson; 9522 = *Ag. tomentosum* (Benth.) Hemsl.; 9542 = *Ag. corymbosum* Zuccag., f. *album* Robinson; 9841 = *Ox. adscendens* (Sch. Bip.) Robinson & Greenman; 9842 = *Ag. corymbosum* Zuccag., v. *latifolium* (DC.) Robinson, f. *albiflorum* Robinson; 9843 = *Ag. corymbosum* Zuccag., v. *latifolium* (DC.) Robinson; 9844 = *Ag. lucidum* Robinson; 9845 = *Ag. salicifolium* Hemsl.; 9846 = *Al. alata* Hemsl.; 11,819 = *Al. Wendlandii* (Sch. Bip.) Robinson; 11,898 = *Ag. salicifolium* Hemsl.; 13,022 = *Ag. lucidum* Robinson.

PURPUS, 187 = *Ox. arbutifolius* (HBK.) Gray; 1179 = *Ag. tomentosum* (Benth.) Hemsl.; 1497 = *Ox. adscendens* (Sch. Bip.) Robinson & Greenman; 1565 = *Ag. corymbosum* Zuccag.; 1567 = *Ox. arbutifolius* (HBK.) Gray; 1870 = *Ag. tomentosum* (Benth.) Hemsl.; 2199 = *Al. echioides* (Less.) Robinson; 2547 = *Ag. tomentosum* (Benth.) Hemsl.; 2767 = *Ox. arbutifolius* (HBK.) Gray; 4561 = *Ag. corymbosum* Zuccag.; 4814 = *Ag. tomentosum* (Benth.) Hemsl.

RAMOS, 2086 = *Ag. conyzoides* L.

REGNELL, III 675 = *Ag. conyzoides* L.

REMY, 229 = *Ag. conyzoides* L.

RENSON, 190 = *Ag. conyzoides* L.

RICKSECKER, 250 b, 430 = *Ag. conyzoides* L.

RIEDEL, 711, 959 = *Al. fastigiata* (Gardn.) Benth., 1346 = *Ag. conyzoides* L.

ROSE, 2538 = *Ag. corymbosum* Zuccag., f. *album* Robinson; 2585 = *Ag. corymbosum* Zuccag., v. *jalicense* Robinson, f. *lactiflorum* Robinson; 2739 = *Ag. corymbosum* Zuccag., v. *euryphyllum* Robinson.

ROSE & HAY, 5738, 5760 = *Ox. arbutifolius* (HBK.) Gray.

ROSE, PAINTER & ROSE, 9631 = *Ag. corymbosum* Zuccag.

RUDIO, *Ag. conyzoides* L.; *Ag. Houstonianum* Mill.

RUSBY, 1642, 1643 = *Ag. conyzoides* L.

SALLÉ, *Al. echioides* (Less.) Robinson.

SALVIN & GODMAN, 48 = *Ag. rugosum* Coult.

SARTORIUS, *Al. echioides* (Less.) Robinson; *Ag. Houstonianum* Mill.
SCHAFFNER, 202, 293 = *Ag. corymbosum* Zuccag.
SCHIEDE, 304 = *Al. echioides* (Less.) Robinson; sine num. *Ag. Houstonianum* Mill.
SCHOMBURGK, RICH., 488 = *Ag. scorpioideum* Bak.
SCHOMBURGK, ROB., 353 = *Ag. scorpioideum* Bak.
SCHUMANN, 40b = *Ag. corymbosum* Zuccag.
SEATON, 55 = *Ag. Houstonianum* Mill.; 237 = *Ox. arbutifolius* (HBK.) Gray; 346, 358 = *Ag. tomentosum* (Benth.) Hemsl.
SEEMANN, 267 = *Ag. conyzoides* L.
SELLO, 119 = *Al. myriadenia* (Sch. Bip.) Bak.; 120, 122 = *Al. fastigiata* (Gardn.) Benth.
SHAFER, 207 = *Ag. conyzoides* L.; 1099 = partim *Ag. maritimum* HBK., partim *Ag. maritimum*, f. *calvum* Robinson.
SHANNON (distrib. J. D. Sm.), 600 = *Ag. conyzoides* L.
SHUFELDT, 101 = *Ag. conyzoides* L.
SIMPSON, 246 = *Ag. littorale* Gray.
SINCLAIR, *Ag. petiolatum* (Hook. & Arn.) Hemsl.; *Ag. salicifolium* Hemsl.; *Ag. scabriusculum* (Benth.) Hemsl.
SINTENIS, 59, 3661, 5816 = *Ag. conyzoides* L.; 5874 = *Ag. conyzoides* L., f. *album* (Willd.) Robinson.
SMITH, C. L., 145 = *Ag. Houstonianum* Mill.; 365 = *Ag. albidum* (DC.) Hemsl.; 594 = *Ag. paleaceum* (Gay) Hemsl. 979 = *Ag. Houstonianum* Mill.
SMITH, H. H., 523 = *Ag. conyzoides* L.
SMITH, H. H. & G. W., 543 = *Ag. conyzoides* L.
SMITH, L. C., 277 = *Ag. paleaceum* (Gay) Hemsl.; 285 = *Ag. tomentosum* (Benth.) Hemsl.; 424 = *Ag. albidum* (DC.) Hemsl.
SNODGRASS & HELLER, 423 = *Ag. latifolium* Cav., v. *galapageium* Robinson.
STUHLMANN, *Ag. conyzoides* L.
TAYLOR, 191 = *Ag. conyzoides* L., v. *inaequipaleaceum* Hieron.
THIEME (distrib. J. D. Sm.), 5323 = partim *Ag. conyzoides* L.
THOMAS, *Al. echioides* (Less.) Robinson.
TONDUZ, 4139 = *Ag. latifolium* Cav.; 7281, 8479, 10,816 = *Al. microcarpa* (Benth.) Robinson.
TRIANA, 1157 = *Ag. latifolium* Cav.
TUERCKHEIM, H. VON (distrib. J. D. Sm.), 488 = *Ag. conyzoides* L.; II 999 = *Ag. conyzoides* L.; II 2051 = *Ag. rugosum* Coult.
TWEEDY, 312 = *Ag. littorale* Gray.
ULE, 3904 = *Al. fastigiata* (Gardn.) Benth.
UNDERWOOD & GRIGGS, 871, 872 = *Ag. conyzoides* L.
VALDEZ, 13 = *Ag. Gaumeri* Robinson.
VELASCO, 8967 = *Ag. rugosum* Coult?
WAGENER, *Ag. latifolium* Cav.
WARD, *Ag. corymbosum* Zuccag.
WARMING, 402 = *Al. myriadenia* (Sch. Bip.) Bak.; sine num. partim *Al. angustata* (Gardn.) Benth., partim *Al. Pohlii* (Sch. Bip.) Bak.
WATT, 10,431 = *Ag. conyzoides* L.
WHYTE, 252 = *Ag. polyphyllum* Bak.
WIGHT, 26 = *Ag. latifolium* Cav.
WILKES, *Ag. conyzoides* L.; *Ag. conyzoides* L., v. *inaequipaleaceum* Hieron.
WILLIAMS, *Ag. conyzoides* L.
WISLIZENUS, 181 = *Ag. corymbosum* Zuccag.
WRIGHT, 1129 = *Ag. corymbosum* Zuccag.; 1310 = *Ag. conyzoides* L.; 1631 (anno 1859–1860) = *Ag. latifolium* Cav.; 1631 (annis 1860–1864) = *Ag. maritimum* HBK.; 2798 = *Ag. domingense* Spreng.; sine num. *Ag. conyzoides* L., *Ag. domingense* Spreng., *Ag. scabriusculum* (Benth.) Hemsl.
WRIGHT, PARRY & BRUMMEL, 250 = *Ag. conyzoides* L., v. *inaequipaleaceum* Hieron.
ZIMMERMANN, 70 = *Ag. conyzoides* L.
ZOLLINGER, 23 = *Ag. conyzoides* L.

III. SOME NEW COMBINATIONS REQUIRED BY THE INTERNATIONAL RULES.

By C. A. Weatherby.

While employed at the Gray Herbarium during the summer of 1911 I was engaged in determinative work and in the re-arrangement and incidental revision of certain groups, notably the *Nyctaginaceae*. In the course of these activities it was found impossible to name certain species in accordance with the provisions of the International Rules of Botanical Nomenclature without employing new combinations. I have been requested to put these names on published record and they may be stated as follows:

Nyctaginaceae.

Oxybaphus ciliatifolius, n. nom. *Oxybaphus aggregatus* Torr. Bot. Mex. Bound. 168 (1859), not Vahl, Enum. ii. 41 (1805). *Allionia ciliata* Standley, Contr. U. S. Nat. Herb. xii. 345 (1909), not *Oxybaphus ciliatus* Phil. ex Meigen in Engl. Bot. Jahrb. xvii. 231 (1893).

Oxybaphus comatus (Small), n. comb. *Oxybaphus nyctagineus*, var. *pilosus* Gray in Torr. Bot. Mex. Bound. 174 (1859). *Allionia comata* Small, Fl. Southeast. U. S. 407 (1903).

Oxybaphus Brandegei (Standley), n. comb. *Allionia Brandegei* Standley, Contr. U. S. Nat. Herb. xii. 346 (1909).

Oxybaphus rotatus (Standley), n. comb. *Allionia rotata* Standley, Contr. U. S. Nat. Herb. xii. 347 (1909).

Oxybaphus giganteus (Standley), n. comb. *Allionia gigantea* Standley, Contr. U. S. Nat. Herb. xii. 348 (1909)

Oxybaphus pratensis (Standley), n. comb. *Allionia pratensis* Standley, Contr. U. S. Nat. Herb. xii. 351 (1909).

Oxybaphus Carletoni (Standley), n. comb. *Allionia Carletoni* Standley, Contr. U. S. Nat. Herb. xii. 355 (1909).

Oxybaphus exaltatus (Standley), n. comb. *Allionia exaltata* Standley, Contr. U. S. Nat. Herb. xii. 355 (1909).

Oxybaphus cardiophyllus (Standley), n. comb. *Oxybaphus Cervantesii* of authors, in part, not Sweet, Brit. Fl. Gard. ser. 1, t. 84. (1823). *Allionia cardiophylla* Standley, Contr. U. S. Nat. Herb. xiii. 405 (1911).

IV. ON THE GRAMINEAE COLLECTED BY PROF. MORTON E. PECK IN BRITISH HONDURAS, 1905-07.

By F. Tracy Hubbard.

Prof. Peck's collection of grasses from British Honduras includes four new species and a number of plants that are little known, several of them not previously reported from Central America. The grasses indicate that the flora of British Honduras is composed of some North Mexican, but chiefly of West Indian and South American elements; a fact which Prof. Robinson tells me is true of the other families.

A list of the species collected is as follows —

Tripsacum dactyloides L. Sp. Pl. ed. 2, **2**: 1378 (1763).— Pine ridge, Ycacos Lagoon, March 8, 1907, *M. E. Peck*, no. 703.

Manisuris granularis (L.) Sw. Prodr. Veg. Ind. Occ. 25 (1788).— Open ground, Toledo, February 7, 1907, *M. E. Peck*, no. 653.

Ischaemum latifolium Kunth, Rev. Gram. **1**: 371, t. 99 (1830).— Swampy ground near Manatee Lagoon, December 30, 1905, *M. E. Peck*, no. 254.

Trachypogon plumosus (Humb. & Bonpl.) Nees, Agrost. Bras. 344 (1829).— Pine ridge near Manatee Lagoon, September 8, 1905, *M. E. Peck*, no. 139.

Andropogon condensatus HBK. Nov. Gen. et Spec. **1** : 188 (1816). — Pine ridge near Manatee Lagoon, June 21, 1905, *M. E. Peck*, no. 59.

Andropogon domingensis (Spreng.), comb. nov. *A. hirtiflorus* Kunth, Rev. Gram. **2** : 569, t. 198 (1832). *Streptachne domingensis* Spreng. ex Schultes, Mant. **2** : 188 (1824). *Schizachyrium domingense* (Spreng.) Nash in No. Am. Fl. **17** : 103 (1912).— Pine ridge near Manatee Lagoon, January 8, 1906, *M. E. Peck*, no. 282. There are three older uses of the combination *A. domingensis* viz. Steud. Nom. ed. 1, 45 (1821); Spreng. ex Steud. Nom. ed. 2, **1**: 91 (1841) in syn; and Fourn. Mex. Pl. **2**: 61 (1886). The second use being in synonymy is invalid and as the first and third uses are both based on *Anatherum domingense* R. & S. Syst. Veg. **2**: 809 (1817) which is given as a synonym of *Andropogon leucostachyus* HBK. (1816) [teste specim.] cf. Kunth, Rev. Gram. **1**: 164 (1824) and generally so considered,—they do not interfere with the present combination.

Andropogon leucostachyus HBK. Nov. Gen. et Spec. **1**: 187 (1816).— Pine ridge near Manatee Lagoon, August 10, 1905, *M. E. Peck*, no. 116.

ANDROPOGON SPATHIFLORUS (Nees) Kunth, Enum. Pl. **1**: 496 (1833).— Low pine ridge near Manatee Lagoon, June 21, 1905, *M. E. Peck*, no. 54.

ANDROPOGON VIRGINICUS L. Sp. Pl. **2**: 1046 (1753).— Pine ridge near Manatee Lagoon, September 27, 1905, *M. E. Peck*, no. 150.

ARUNDINELLA DEPPEANA Nees ex Steud. Syn. Pl. Gram. 115 (1854). — Thicket near Manatee Lagoon, February 28, 1906, *M. E. Peck*, no. 359; river bank, Moho R., March 16, 1907, *M. E. Peck*, no. 735. This species may not be distinct from *A. peruviana* (Presl) Steud. l. c. as affirmed by Nash in No. Am. Fl. **17**: 143 (1912), but from the material in the Gray Herbarium it seems to be distinct.

LEPTOCORYPHIUM LANATUM (HBK.) Nees, Agrost. Bras. 84 (1829). — Pine ridge near Manatee Lagoon, August 30, 1905, *M. E. Peck*, no. 137.

DIGITARIA SETIGERA Roth ex R. & S. Syst. Veg. **2**: 474 (1817). *D. setosa* Desv. ex Hamilt. Prodr. Pl. Ind. Occ. 6 (1825). *Syntherisma digitatum* (Sw.) Hitchc. Contr. U. S. Nat. Herb. **12**: 142 (1908) based on *Milium digitatum* Sw. Prodr. Veg. Ind. Occ. 24 (1788) not *D. digitata* Buese in Miq. Pl. Jungh. 381 (1855).— Cultivated ground near Manatee Lagoon, June 18, 1905, *M. E. Peck*, no. 44.

THRASYA CAMPYLOSTACHYA (Hack.) Chase in Proc. Biol. Soc. Wash. **24**: 115 (1911). *Panicum campylostachyum* Hack. in Oesterr. Bot. Zeitschr. **51**: 367 (1901).— Pine ridge near Manatee Lagoon, June 18, 1905, *M. E. Peck*, no. 70. This interesting species originally described from Costa Rica seems to be limited in its distribution to the southern portion of Central America. The determination was kindly verified by Mrs. Chase, Assistant Agrostologist of the Bureau of Plant Industry.

Mesosetum filifolium, sp. nov. Culmi caespitosi, basin versus a vaginis multis arcte imbricatis obtecti, erecti, tenues, 35–70 cm. altitudine, inflorescentiam versus puberuli aliter nodis breviter hispidobarbatis exceptis glabri. Vaginae radicales squamiformes, tumidiusculae, hispidae, abrupte ad folii junctionem contractae babulataeque; eae culmarum elongatae sed internodio breviores, glabrae, in laminas gradatim transeuntes. Ligula barbulata, circa 0.5 mm. longa. Folia erecta, setaceo-filiformis, basin versus conduplicata, 7–28 cm. longa, 0.5 mm. lata, glabra, ea culmarum reducta, supremum saepe vix 1 cm. longum. Inflorescentia erecta, 4–7 cm. longa, 5 mm. diametro; axis flexuosus fere capillaris, excavationi non ostendentius, puberulus vel scaber; pedicellum breve, hispidum. Spiculae patenti-erectae, lineari-oblongae, apicem versus tenebrae, albido-villosae, 5 mm. longae, 1.5 mm. latae; gluma prima quam secunda brevior vel eam subaequans,

3-nervata, acuta, dense hirsuta villis adpressis apicem glumae superantibus, ad basin penicillatum collectis; gluma secunda 5-nervata, involuto-acuminata, quam lemma sterile paullum longior, hirsuta villosa; lemma sterile dorso-concavum, 2-carinatum, 5-nervatum, abrupte acuminatum, carinis apicem versus longe villoso-penicillatis; lemma fertile 5-nervatum, ad apicem carinatum, apice hispidulo et acuto, quam palea 2-nervata paullum longius.— Type (in the Gray Herb.) and only specimen seen, pine ridge near Manatee Lagoon, August 30, 1905, *M. E. Peck*, no. 136. This species is closely allied to *M. exaratum* (Trin.) Chase, but is taller, much longer leaved, the inflorescence longer and the spikelets are larger, more villous and with more pointed parts.

Axonopus laxiflorus (Trin.) Chase in Proc. Biol. Soc. Wash. **24**: 133 (1911). *Anastrophus laxiflorus* (Trin.) Nash in No. Am. Fl. **17**: 163 (1912).— Pine ridge near Manatee Lagoon, July 8, 1906, *M. E. Peck*, no. 464. I have not been able to compare this, but ex char. I believe it to be the above.

Paspalum caespitosum Flügge, Gram. Monogr. 161 (1810).— Open ground, Toledo, March 26, 1907, *M. E. Peck*, no. 769. Not previously reported from Central America, former distribution southern Florida, Bahamas, Jamaica, Cuba, Porto Rico and South America.

Paspalum orbiculatum Poir. in Lam. Encycl **5**: 32 (1804). *P. pusillum* Vent. ex Flügge, Gram. Monogr. 100 (1810).— Open ground, Toledo, October 1, 1906, *M. E. Peck*, no. 541.

Paspalum paniculatum L. Syst. Nat. ed. 10, **2**: 855 (1759).— Open ground, Toledo, October 1, 1906, *M. E. Peck*, no. 542; clearing near Manatee Lagoon, February 27, 1906, *M. E. Peck*, no. 970. A very variable species, the Peck specimens show extremes of pilosity.

Paspalum Peckii, sp. nov., perenne, dense caespitosum, 80 cm. altitudine, radicibus fibrosis. Culmi erecti, crassi, glabri, nodis fuscis paullum breviter pilosis. Vaginae infimae saepe squamiformes, adpresse breviter pilosae; superiores imbricatae, supra aliquid conduplicatae, internodia aequantes vel ea superantes, glabrae sed per majorem vel minorem partem longitudinis suae cum marginibus papilloso-pilosis et ad folii junctionem cum annulo piloso. Ligula membranacea, 2 mm. longa. Folia erecta, rigidiuscula, linearia, plana vel conduplicata, longe acuminata, 10–34 cm. longa, 5–10 mm. lata, marginibus scabris; lamina subtus glabra vel sparse pilosa, supra breve pilosa basin versus densius induta, longe villosa ad basin penicillata. Inflorescentia terminalis, subdigitata, 10–15 cm. longa, in pedunculis rigidis, canaliculatis, glabris vel sparse hispidis longe

exserta; racemi 2–3, saepius 3, 10–13 cm. longi, rhachi membranaceo-alato 1 mm. lato, spiculas binas in ordinibus duobus ferente, in margine basin versus sparse longeque ciliato, ad axis principalis junctionem piloso, aliter glabro marginibus et costa media et pedicellis scabris exceptis. Spiculae turgidae, elliptici-obovatae, acutae, glabrae, albo-virides saepe purpureo-coloratae, circa 2.7 mm. longae, 1.5 mm. latae, aliquando 2-florae,— inferior staminifera, superior hermaphrodita; gluma prima plerumque adest, quintam partem vel etiam dimidiam partem spiculae longitudine aequans, truncata vel acuminata, 1-nervata cum nervo scabro; gluma secunda 5-nervata, quam lemma sterile brevior; lemma sterile 5-nervatum, fructus superans, ad apicem incrassatum puberulumque; palea sterilis aliquando adest, indurata; fructus ellipsoidalis, circa 2.2 mm. longus, 1.4 mm. latus.— Type (in the Gray Herb.) and only specimen seen, pine ridge near Manatee Lagoon, July 18, 1905, *M. E. Peck*, no. 71. *P. Peckii* belongs to the section *Monostachya* and is most nearly allied to *P. pilosum* Lam. (*Panicum monostachyum* HBK. not *Paspalum monostachyum* Vasey), but differs from it in the greater number of racemes [*P. pilosum* occasionally has 2, but usually only 1], the longer less pubescent leaf-blades and the thinner sterile lemma. I wish to thank Mrs. Chase for her kindness in comparing the Peck specimen with the material at Washington and for her notes relating to its difference from other species of this group.

Paspalum pectinatum Nees, Agrost. Bras. 34 (1829).— Pine ridge, Ycacos Lagoon, March 1, 1907, *M. E. Peck*, no. 680. Determined by Mrs. Chase who states that they have (in Washington) only one North American collection of this species, Costa Rica, *Biolley*, no. 2651. *P. pectinatum* is a South American species.

Paspalum pedunculatum Poir. in Lam. Encycl. Suppl. **4**: 315 (1816).— Pine ridge near Manatee Lagoon, August 8, 1905, *M. E. Peck*, no. 110.

Paspalum pulchellum HBK. Nov. Gen. et Spec. **1**: 90, t. 26 (1816).— Pine ridge near Manatee Lagoon, July 31, 1905, *M. E. Peck*, no. 86. Previously reported from Cuba, Hispaniola, Barbados and South America; new for Central America.

Paspalum Schreberianum (Flügge) Nash in No. Am. Fl. **17**: 190 (1912).— Wet pine ridge near Manatee Lagoon, July 18, 1905, *M. E. Peck*, no. 69 a. Determined by Mrs. Chase. The specimen (in the Gray Herb.) consists of two inflorescences which were tied with no. 69, *Paspalum Underwoodii* Nash, and extends the range to Central America as the former distribution was the West Indies and South America.

PASPALUM UNDERWOODII Nash in Bull. Torr. Bot. Club, **30**: 375 (1903).— Wet pine ridge near Manatee Lagoon, July 18, 1905, *M. E. Peck*, no. 69. Determined by Mrs. Chase. A West Indian species not previously reported from Central America.

PANICUM CHRYSOPSIDIFOLIUM Nash in Small, Fl. Southeast U. S. 100 (1903).— Forest near Sibune R., May 8, 1906, *M. E. Peck*, no. 425. Previously reported from Florida, Louisiana, Cuba and Porto Rico; new for Central America.

PANICUM CYANESCENS Nees Agrost. Bras. 220 (1829).— Low pine ridge near Manatee Lagoon, January 5, 1906, *M. E. Peck*, no. 271, A variable species resembling *P. parvifolium* Lam., but more upright, with longer leaves and larger panicle. It is a South American species apparently new to North America. The references to *P. cyanescens* in Hemsl. Biol. Cent.-Am. Bot. **3**: 487 (1885) and Fourn. Mex. Pl. **2**: 20 (1886) are probably misapplications of the name and referable to *P. parvifolium*. *Wright*, no. 3459 cited by Fournier is according to Prof. A. S. Hitchcock's notes on this number in the Gray Herbarium a mixture of *P. parvifolium* Lam. and *P. nitidum* Lam.

PANICUM FASCICULATUM Sw. Prodr. Veg. Ind. Occ. 22 (1788).— Cultivated ground near Manatee Lagoon, January 27, 1906, *M. E. Peck*, no. 317.

PANICUM FUSIFORME Hitchc. Contr. U. S. Nat. Herb. **12**: 222 (1909). — Pine ridge near Manatee Lagoon, July 7, 1906, *M. E. Peck*, no. 453a. Distribution previously limited to the extreme southeastern portion of the United States and Cuba. New for Central America.

PANICUM LAXUM Sw. Prodr. Veg. Ind. Occ. 23 (1788).— Pine ridge near Manatee Lagoon, June 21, 1905, *M. E. Peck*, no. 60.

PANICUM MAXIMUM Jacq. Coll. Bot. **1**: 76 (1786).— Thickets near Manatee Lagoon, November 10, 1905, *M. E. Peck*, no. 195.

PANICUM PILOSUM Sw. Prodr. Veg. Ind. Occ. 22 (1788).— Pine ridge near Manatee Lagoon, June 10, 1905, *M. E. Peck*, no. 28.

PANICUM PULCHELLUM Raddi, Agrost. Bras. 42 (1823).— Pine ridge near Manatee Lagoon, January 8, 1906, *M. E. Peck*, no. 279.

PANICUM RUDGEI R. & S .Syst. Veg. **2**: 444 (1817).— Pine ridge, Monkey R., December 26, 1906, *M. E. Peck*, no. 588.

PANICUM SPHAEROCARPON Ell. Sketch **1**: 125 (1816).— Pine ridge near Manatee Lagoon, June 21, 1905, *M. E. Peck*, no. 61.

Panicum stenodoides, sp. nov., perenne, virgulta e caudice noduloso formans, circa 30 cm. altitudine, olivaceum, radicibus paullum carnosis. Culmi erecti, tenues, firmiusculi, basin versus toto vel fere glabri, supra papilloso-pilosi, nodis glabris. Vaginae infimes squami-

formes, glabrae, superiores breves, circa 2 cm. longae, patente papilloso-pilosae, abrupte ad folii junctionem contractae. Ligula membranacea, brevissima, 0.25 mm. longa. Folia erecta, rigidiuscula linearia, subtus plana apicem versus involuto-setacea, 5–14 cm. longa, 1–2 mm. lata, lamina utrinque papilloso-pilosa. Paniculae terminales, solitariae vel per occasionem cum secunda breviori ex axe eodem producta, breve exsertae vel ad basin inclusae, plerumque bractea parva setiforme suffultae, circa 1 cm. longae, 2–4 mm. diametro, 5–7-spiculatae, axe pedicelloque scabris. Spiculae obtusae, turgidae, paullum ad basin attenuatae, 2 mm. longae, circa 1.5 mm. latae, valde nervatae; gluma prima quam spicula duplo brevior, 3-nervata, acuta; gluma secunda 9-nervata, lemma sterile 9-nervatum aequans; fructus ellipsoidalis, acutus, circa 1.7 mm. longus, 1 mm. latus, paullum glumam secundam et lemma sterile superans.— Type (in the Gray Herb.) and only specimen seen, low pine ridge, Ycacos Lagoon, March 5, 1907, *M. E. Peck*, no. 681. This species belongs to the small section *Tenera* as characterized in Hitchc. & Chase, Contr. U. S. Nat. Herb. **15**: 97 (1910). It is very similar to *P. stenodes* Griseb. and *P. caricoides* Nees, but differs from the former in having pilose culms, sheath and leaves and larger spikelets; from the latter it differs very noticeably in the absence of long stiff hairs on the pedicel.

PANICUM TRICHANTHUM Nees, Agrost. Bras. 210 (1829).— Open ground, Toledo, March 27, 1907, *M. E. Peck*, no. 775. The Peck specimen is rather stouter and the spikelets slightly larger than usual.

PANICUM TRICHOIDES Sw. Prodr. Veg. Ind. Occ. 24 (1788).— Clearing near Manatee Lagoon, January 27, 1906, *M. E. Peck*, no. 314; open ground, Toledo, February 2, 1907, *M. E. Peck*, no. 637.

PANICUM VIRGATUM L. Sp. Pl. ed. 1, **1**: 59 (1753).— Swamp near Manatee Lagoon, July 18, 1905, *M. E. Peck*, no. 73; swamp near Manatee Lagoon, August 13, 1905, *M. E. Peck*, no. 123.

PANICUM (§ PTYCHOPHYLLUM) CRUS-ARDEAE Willd. ex Nees, Agrost. Bras. 253 (1829).— Forest, upper Moho R., October 18, 1906, *M. E. Peck*, no. 565. The proper position of the section *Ptychophyllum* seems to be very uncertain. By some it is considered a section of *Setaria* while by others it is retained in *Panicum*. As this species has never been transferred to *Setaria*, I am maintaining the old name though presumably its affinity is more with *Setaria* than *Panicum*.

ICHNANTHUS PALLENS (Sw.) Doell in Mart. Fl. Bras. **2**^{2}: 290 (1877). — Forest near Manatee Lagoon, October 18, 1905, *M. E. Peck*, no. 172; forest near Manatee Lagoon, January 27, 1906, *M. E. Peck*, no. 312.

LASIACIS DIVARICATA (L.) Hitchc. Contr. U. S. Nat. Herb. **15**: 16 (1910). *Panicum divaricatum* L. Syst. Nat. ed. 10, **2**: 871 (1759).— Thicket near Manatee Lagoon August 2, 1905, *M. E. Peck*, no. 93.

LASIACIS GRISEBACHII (Nash) Hitchc. in Bot. Gaz. **51**: 302 (1911). *Panicum Grisebachii* Nash in Bull. Torr. Bot. Club **35**: 301 (1908).— Forest near Manatee Lagoon, November 10, 1905, *M. E. Peck*, no. 197. A species apparently hitherto restricted to Cuba.

LASIACIS PROCERRIMA (Hack.) Hitchc. ex Chase in Proc. Biol. Soc. Wash. **24**: 145 (1911). *Panicum procerrimum* Hack. in Oesterr. Bot. Zeitschr. **51**: 431 (1901).— Forest near Manatee Lagoon, August 6, 1905, *M. E. Peck*, no. 107.

LASIACIS sp.— Pine ridge, Monkey R., December 28, 1906 *M. E. Peck*, no. 593. This may be *Panicum martinicense* Griseb. Fl. Brit. W. Ind. 552 (1864), as it answers the description and is reported by Grisebach as coming from Jamaica [Martinique!, Panama!, Guiana!]. The identity of Grisebach's species is, however, at present uncertain and consequently it is unwise to make a new combination. Prof. Hitchcock writes me that a specimen of *Sieber*, no. 29 from Martinique (cited by Grisebach) is *Lasiacis Swartziana* Hitchc., though this particular specimen may not be the one from which Grisebach drew his description.

SACCIOLEPIS VILVOIDES (Trin.) Chase in Proc. Biol. Soc. Wash. **21**: 7 (1908).— Wet pine ridge, Ycacos Lagoon, May 15, 1905, *M. E. Peck*, no. 901. This species has been previously reported from southern Mexico and Brazil.

HOMOLEPIS ATURENSIS (HBK.) Chase in Proc. Biol. Soc. Wash. **24**: 146 (1911).— Pine ridge near Manatee Lagoon, June 18, 1905, *M. E. Peck*, no. 45.

OPLISMENUS BURMANNII (Retz.) Beauv. Agrost. 54 (1812).— Forest near Manatee Lagoon, February 22, 1906, *M. E. Peck*, no. 349.

SETARIA IMBERBIS (Poir.) R. & S. Syst. Veg. **2**: 891 (1817).— Cultivated ground, Toledo, September 9, 1906, *M. E. Peck*, no. 491.

OLYRA LATIFOLIA L. Amoen. Acad. (Pugill. Jam.) **5**: 408 (1759).— Forest near Manatee Lagoon, August 8, 1905, *M. E. Peck*, no. 109; in the same collection but without more precise data, *M. E. Peck*, no. 609.

OLYRA LATIFOLIA L. forma.— Thicket, Toledo, September 21, 1906, *M. E. Peck*, no. 533. A narrow-leaved form.

LITHACHNE PAUCIFLORA (Sw.) Beauv. Agrost. 135, 168 (1812) by implication only, no combination made,— cf. Ind. Kew. **2**[1]: 98 (1895). *Olyra pauciflora* Sw. Prodr. Veg. Ind. Occ. 21 (1788). *L.*

axillaris Beauv. Agrost. 166, Atlas 15, t. 24 f. 2 (1812).— Forest, Toledo, September 12, 1906, *M. E. Peck*, no. 507.

ARISTIDA DIVARICATA Humb. & Bonpl. ex Willd. Enum. Hort. Berol. 99 (1809).— Pine ridge near Manatee Lagoon, July 18, 1905, *M. E. Peck*, no. 72.

Aristida pseudospadicea, sp. nov., perennis, dense caespitosa, circa 80 cm. altitudine, radicibus fibrosis. Culmi erecti, tenues sed rigidi, basin versus aliquid ramosi, supra simplices, albo-virides, ad nodos purpurascentes, omnino glabri. Vaginae e basi imbricata tumidiuscula paullum angustatae, in parte superiori culmos laxissime includentes vel patentes, quam internodia multo breviores, glabrae, ad folii junctionem angulo recto abruptissime contractae et cum annulo atro-brunneo cinctae. Ligula annularis brevis hispida in auriculas vaginae procurrens, circa. 0.2 mm. longa. Folia baseos superioribus similia, erecta, plana vel conduplicata, longe setaceo-acuminata, 8–30 cm. longa, 1–2 mm. lata; lamina subtus glabra, supra sparse longe tenuiterque pilosa basin versus pilis crebrioribus instructa. Inflorescentia panicula simplex, gracilis; 20–26 cm. longa, 2–4 cm. diametro; radiis in axillis solitariis (per occasionem secundo breviore), adpresso-ascendentibus vel paullo patentibus, inferioribus remotis; axe radiisque glabris. Spiculae glabrae, albo-virides vel paullum albo-violaceae, 9–11 mm. longae, circa 1 mm. diametro, callo obconico in summa parte barbato, circa 1 mm. longo; glumae carinatae, 1-nervatae, gluma prima in nervo scabra, acuminata, quam secunda aliquanto breviori, gluma secunda aristato-acuminata vel paullum bifida cum arista brevi; lemma quam gluma secunda longius, ad apicem aliquid tortum, scabrum, partibus tribus aristae divaricatis, subaequantes vel lateralibus multo brevioribus, parti media ad 35 mm. longa; palea circa 1 mm. longa.— Type (in the Gray Herb.) and only specimen seen, pine ridge near Manatee Lagoon, June 11, 1905, *M. E. Peck*, no. 31. *A. pseudospadicea* is most nearly allied to *A. spadicea* HBK. from which it differs in its more slender habit, absence of flat curled basal leaves, long-pilose upper leaf-surface and smaller spikelets. Similar differences separate it from *A. arizonica* Vasey. The comparatively long callus separates it at once from *A. tincta* Trin. & Rupr. which has a very short one. I wish to thank Mrs. Chase for comparing the material with that at Washington.

SPOROBOLUS CUBENSIS Hitchc. Contr. U. S. Nat. Herb. **12**: 237 (1909).— Pine ridge, Ycacos Lagoon, March 5, 1907, *M. E. Peck*, no. 694. A Cuban and Porto Rican species apparently new for Central America.

SPOROBOLUS VIRGINICUS (L.) Kunth, Rev. Gram. **1**: 67 (1829).— Low ground near Manatee Lagoon August 10, 1905, *M. E. Peck*, no. 120.

SPARTINA GOUINI [2] Fourn. ex Hemsl. Biol. Cent.-Am. Bot. **3**: 509 (1885) nomen; Fourn. Mex. Pl. **2**: 135 (1886).— Swampy shore of Manatee Lagoon, August 14, 1905, *M. E. Peck*, no. 130. Previously collected in Mexico only. The Peck material agrees perfectly with a specimen, in the Gray Herbarium, labelled *Spartina densiflora* Brongn. (*S. Gouini* Fourn.!) [alkaline meadows, Hacienda de Angostura, San Luis Potosi, Mexico, July 10, 1891, *C. G. Pringle*, no. 3760]. Judging from Brongniart's description of *S. densiflora* (a Chilean species) in which he calls attention to its affinity to *S. glabra* Muhl. I doubt very much that the Mexican *S. Gouini* is the same and a Chilean specimen in the Gray Herbarium, labelled *S. densiflora* Brongn. [Valdivia: Ensenada bei Corral, in Gräben 5/1 1905, *Dr. Otto Buchtien*, no. 1285] certainly is not the same as *Pringle*, no. 3760, but shows a strong resemblance to *S. glabra* Muhl.

LEPTOCHLOA FILIFORMIS (Lam.) Beauv. Agrost. 71, 166 (1812). *L. mucronata* (Michx.) Kunth. Rev. Gram. **1**: 91 (1829).— Clearing near Manatee Lagoon, January 21, 1906, *M. E. Peck*, no. 296.

ELEUSINE INDICA (L.) Gaertn. Fruct. **1**: 8 (1788).— Cultivated ground near Manatee Lagoon, June 8, 1905, *M. E. Peck*, no. 43.

ERAGROSTIS ELLIOTTII Wats. in Proc. Am. Acad. **25**: 140 (1890).— Pine ridge near Manatee Lagoon, November 25, 1905, *M. E. Peck*, no. 222a. Not previously reported from Central America, former distribution southeastern United States, Cuba and Porto Rico.

ERAGROSTIS HYPNOIDES (Lam.) BSP. Prelim. Cat. N. Y. Pl. 69 (1888).— Swamp near Sibune R., May 1, 1906, *M. E. Peck*, no. 143.

ERAGROSTIS MEXICANA (Lag.) Link, Hort. Berol. **1**: 190 (1827).— Wet pine ridge near Manatee Lagoon, July 18, 1905, *M. E. Peck*, no. 69b.

ERAGROSTIS sp.— affinis *E. acutiflorae* (HBK.) Nees.— Pine ridge near Manatee Lagoon, January 8, 1906, *M. E. Peck*, no. 281a. The Peck material is too immature to determine more definitely than above. Mrs. Chase has kindly compared this with the material at Washington and has been unable to identify it.

---

[2] Since the preparation of this article Prof. A. S. Hitchcock's paper on Mexican Grasses [Contr. U. S. Nat. Herb. **17** (1913)] has appeared. In this,— pages 329, 330,— he refers *Pringle*, no. 3760 to *S. spartinae* (Trin.) Merr. U. S. Bur. Pl. Ind. Bull. **9**: 11 (1902). I have no doubt that he is correct in so doing; consequently the Peck material should be named *S. spartinae* (Trin.) Merr.

ARUNDINARIA? — Lower Moho R., October 16, 1906, *M. E. Peck*, no. 560. Without inflorescence, probably an *Arundinaria*, possibly *A. longifolia* Fourn.

V. DIAGNOSES AND TRANSFERS AMONG THE SPERMATOPHYTES.

BY B. L. ROBINSON.

IN the course of routine work at the Gray Herbarium during the last few months the writer has found it necessary to employ a number of new names, resulting either through transfers of the plants in question or rendered needful by the provisions of the International Rules of Botanical Nomenclature. That these names may have proper status they are here given published record, together with a few diagnoses of new species. Two plants characterized at the Gray Herbarium by Mr. Sidney F. Blake and a transfer made by Mr. Sumner C. Brooks are included by request.

Inga (§ **Diadema**) **Peckii,** spec. nov., pedunculis exceptis glabra; ramis teretibus cortice griseo a lenticellis numerosis scabrato tectis plus minusve geniculatis; foliolis 2–3-jugis oblongis petiolulatis subcoriaceis supra subnitidis subtus opacis vel subglaucescentibus apice basique acuminatis 9–17 cm. longis 3.5–7.5 cm. latis penninerviis; petiolulis 4–6 mm. longis; rhachi commune ca. 1.5 dm. longo striato-angulato exalato; pedunculis brevibus gracilibus ex eodem axillo plurimis; receptaculo ovoideo, capitibus globosis saepius 12–18-floris; floribus sessilibus; calyce ca. 2 mm. longo subcylindrato margine brevissime dentato obsolete hispidulo-ciliato aliter glabro; corolla glabra graciliter tubulata sursum leviter gradatimque ampliata, dentibus limbi brevissimis deltoideis; tubo staminum exserto; legumine glabro falcato-oblongo ca. 13 cm. longo ca. 2.2 cm. lato 11-seminato.— British Honduras, *Prof. Morton E. Peck*, no. 673 (type, in Gray Herb.). A species nearly related to *I. jinicuil* Schlecht. but differing in its much shorter peduncles, thicker duller and less reticulated leaflets, shorter corolla-teeth, exserted stamen-tube, etc. From the imperfectly described and wholly obscure *I. coriacea* (Moc. & Sess.) G. Don it differs in having leaflets symmetrical not oblique at the base.

Acacia bucerophora, spec. nov., fruticosa vel arborea; ramis tereti-

bus, cortice griseo pustulis suberosis fulvis maculato; aculeis infrastipularibus geminis rigidis patenti-ascendentibus arcuatis cavis 4–6 cm. longis basi 5 mm. diametro apicem attenuatam versum cum foramine verisimiliter a formicis facto munitis; foliis ca. 2 dm. longis ca. 8 cm. latis; petiolo 1 cm. longo subtereti supra canaliculato; pinnae 14–16-jugis lineari-oblongis contiguis vel etiam imbricatis falcatis basi obliquis apice rotundatis ca. 6 mm. longis 1 mm. latis glabris subtus pallidioribus; inflorescentiis globosis usque ad 15 ex eodem axillo; pedunculis brevibus 1–2.5 cm. solum longis ca. 2–4 mm. supra basin cum involucro annulari squamuliformi saepius 3-partito instructis nec non media in parte cum involucello simili munitis; calyce subcylindrico parum superne ampliato breviter 4-dentato; corolla breviter exserta glabra; legumine sessili falcato-lineari ca. 14 cm. longo 6 mm. solum lato margine valde incrassato faciebus concavis glabris apice basique attenuato.— British Honduras, *Prof. Morton E. Peck*, no. 632 (type, in Gray Herb.). Another species of the highly interesting ant-inhabited Acacias like *A. sphaerocephala* Cham. & Schlecht., *A. spadicigera* Cham. & Schlecht., *A. Hindsii* Benth., etc., but differing from all these markedly in the double involucre of the peduncles, as well as in the long narrow pod, and various other features.

SESBANIA VESICARIA (Jacq.) Ell., var. **atro-rubra** (Nash) S. C. Brooks, comb. nov. *Glottidium floridanum* (Willd.) DC., var. *atro-rubrum* Nash, Bull. Torr. Bot. Club, xxiii. 101 (1896). *G. vesicarium atrorubrum* (Nash) Small, Fl. S. E. U. S. 615 (1903).

Aeschynomene tenerrima, spec. nov., herbacea gracilis palustris ca. 5 dm. alta ubique glaberrima; caule tereti pallide brunneo deorsum leviter spongiose incrassato supra gracillimo paucirameo, ramis ascendentibus subfiliformibus; foliis 2–3.5 cm. longis brevissime petiolatis; rhachi filiformi; foliolis ca. 18-jugis minutis oblongis basi obliquis apice rotundatis 2–2.3 mm. longis 1 mm. latis utrinque pallide viridibus concoloribus; racemis axillaribus 2–3-floris gracillimis; bracteis lanceolatis subscarioso-brunneis vel -purpureis vix 1 mm. longis; floribus anthesi ca. 2.8 mm. longis; calyce herbaceo pallide viridi plus minusve bilabiato, fructifero persistenti brunnescenti; petalis violascentibus ca. 2–2.5 mm. longis; legumine longe (ca. 5 mm.) graciliterque stipitato valde ex calice exserto, articulo unico semiorbiculari 4 mm. longo glabro margine incrassato apice cum styli basi torta vel curvata appendiculato faciebus leviter reticulato-venosis.— Swamp near Ycaco Lagoon, British Honduras, 15 May, 1907, *Prof. Morton E. Peck*, no. 900 (type, in Gray Herb.). A very delicate palustrine species with exceedingly small leaflets and inconspicuous

flowers, not closely related to any other Mexican or Central American species, though clearly of the genus.

WISSADULA SPICATA (HBK.) Presl, Rel. Haenk. ii. 117 (1830). *Abutilon spicatum* HBK. Nov. Gen. et Spec. v. 271 (1821). To the synonymy of this species may be added *Wissadula elongata* Brandegee, Zoe, v. 210 (1905), from Cofradia in the vicinity of Culiacan, Sinaloa.

Linociera oblanceolata, spec. nov., fruticosa vel arborea; ramis gracilibus teretiusculis cortice griseo tectis; ramulis fulvido-puberulis; foliis vix coriaceis oblanceolatis utrinque glabris 11–13 cm. longis 3.5–4.2 cm. latis apice caudato-acuminatis basi sensim angustatis, petiolo proprio teretiusculo puberulo 3–4 mm. solum longo; paniculis laxis 6–8 cm. longis gracillimis ex axillis superioribus foliorum verorum oriuntibus flavido-puberulis; floribus graciliter 3–5 mm. longe pedicellatis; calycis lobis ovatis acuminatis patentibus 1.2 mm. longis flavido-puberulis; petalis margine valde involutis caudiformibus 7–10 mm. longis; antheris 1 mm. longis obtusis, filamentis brevissimis, connectivo apice non productis; fructu crassiuscule clavato 1.9 cm. longo 8 mm. diametro in specimine sicco nigrescente.— Forest, upper Moho River, British Honduras, 16 March, 1907, *Prof. Morton E. Peck,* no. 719 (type, in Gray Herb.). This species differs from *L. caribaea* (Jacq.) Knobl. by its unappendaged anthers. From *L. Bakeri* Urb. of Cuba it may be distinguished by its larger oblanceolate acuminate and even more shortly petioled leaves.

Strychnos (§ **Longiflorae**) **Peckii,** spec. nov., fruticosa cirrhifera; ramis subteretibus a cortice griseo laevi tectis; ramulis gracilibus rectis patentissimis plus minusve sulcatis fulvo-puberulis apicem versus saepissime bifoliatis; cirrhis spiraliter aduncis 2–3 cm. longis usque ad 4 mm. crassis lignescentibus; foliis ovato-ellipticis acute acuminatis 7–11 cm. longis 3.4–5 cm. latis firme membranaceis glabris supra viridibus laevibus subtus distincte pallidioribus obscure puncticulatis 5-nervatis, nerviis saltim basim versus minutissime strigillosis; inflorescentiis axillaribus brevibus multifloris subglobosis glomeruliformibus; bracteis lineari-lanceolatis 3–4 mm. longis, bracteolis minutis obscurisque; pedicellis brevibus fulvo-puberulis; calyce rotato 5-lobo, lobis ovatis acuminatis patentibus ciliolatis; corolla 1 cm. longa, tubo cylindrato 7 mm. longo extus patente fulvo-tomentello, lobis patentibus acutatis supra ut faucibus dense flavo-barbatis; antheris anguste oblongis vix exsertis; stylo nunc modice nunc vix exserto.— Forest, Sittee River, British Honduras, 15 April, 1907, *Prof. Morton E. Peck,* no. 856 (type, in Gray Herb.). This species appears to approach *S. Erichsonii* Rich. Schomb. of British Guiana,

but the latter (known to the writer only from Progel's description in the Flora Brasiliensis, vi. pt. 1, 274) is said to have coriaceous leaves about three times as long as broad, and a corolla which is granulose-pulverulent on the outside. Furthermore, the figure of the corolla (Progel, l. c., t. 82, f. II.) shows the bearding only at the throat, while in the species here characterized it extends well out upon the lobes.

Gymnolomia acuminata Blake, spec. nov., herbacea ramosa strigoso-hispida caule tenui; foliis inferioribus oppositis superioribus alternis lanceolatis longe acuminatis crenulato-serrulatis basi cuneatis utrinque scabro-hispidis infra sparse glandulosis 5–8 cm. longis 1.2–1.8 cm. latis petiolis submarginatis 1 cm. longis dense hispido-strigosis basi ampliatis; ramis floriferis tenuibus ad apicem 3–5-capitulatis cum bracteis paucis linearibus subsessilibus munitis; capitulis longe (2.5–7.5 cm.) pedunculatis subglobosis 8–9 mm. diametro (radiis exclusis); disco convexo; involucri 6–7 mm. alti squamis triseriatis dense strigillosis interioribus ovalibus 3.5 mm. latis exterioribus duplo brevioribus late oblongis 2 mm. latis; radiis plerumque 8 flavis late oblongis subintegris 8 mm. longis; corollis disci flavis 3.5 mm. longis basi non ampliatis 10-nervatis glabris; styli ramis brevibus clavatis apice incrassatis breviappendiculatis; paleis subtruncate tridentatis apice pilosis; acheniis glabris atris oblongis incrassatis epapposis multistriatis 2.1 mm. longis apice obliquis.— Prope Gómez Fárias, Tamaulipas, Mexico, 13–21 April 1907, *Palmer* 582 (spec. typ. in herb. Grayano).—Species ad *G. latibracteatam* Hemsl. arcte affinis, foliis infra hispido-strigosis capitulis minoribus squamis strigosis non minute strigillosis bene distincta.

Flourensia retinophylla Blake, spec. nov. frutex ramosissima cortice brunneo-canescente ramulis junioribus viscido-glutinosis; foliis anguste lanceolatis integerrimis utroque acuminatis mucronulatis glutinosis in petiolum brevisissimum marginatum angustatis 2.5–3.5 cm. longis 4–7.5 mm. latis punctatis venis reticulatis costa valida; capitulis in apicibus ramulorum dense racemosis (3–6) discoideis ca. 12-floris glutinosis turbinatis 10–12 mm. altis; pedunculis brevibus 1–3-bracteolatis; involucri 8 mm. alti squamis laxis 2–3-seriatis oblongo-lanceolatis subobtusis luteo-viridibus; paleis firmis obtusis mucronatis ca. 3-nervatis 8.5–9.8 mm. longis; corollis luteis 5 mm. longis (tubulo 1.1 mm.) dentibus apice resinosis; acheniis cuneatis 6 mm. longis leviter incrassatis dense villosis, aristis 2 serrulatis basi subampliatis 3 mm. longis, squamellis nullis.— Sierra de la Paila, Coahuila, Mexico, Nov. 1910, *Purpus* 4728 (spec. typ. in herb. Grayano conservatum).— Planta ut *F. laurifolia* DC. distributa, a qua

foliis parvis anguste lanceolatis et capitulis minoribus brevipedunculatis et floribus paucioribus satis differt.

JAUMEA TENUIFOLIA (Sch. Bip.) Klatt, Leopoldina, xxiii. 146 (1887), p. 6 of reprint. *Neurolaena tenuifolia* Sch. Bip. acc. to Klatt, l. c. This species, imperfectly characterized by Dr. Klatt, is shown by his fragments of type material to have rested upon a very immature specimen of some plant with pappus of capillary bristles and with the young corollas (still closed) purplish-tomentose. Though from the fragments at hand it is impossible to place the species in any genus, it may be said with perfect definiteness that the plant, with its fine capillary pappus, is not a *Jaumea*. Its habit is rather that of a *Eupatorium* than of a *Neurolaena*, but the florets are too immature to furnish distinctive generic or even tribal characters. The type number (*Liebmann*, no. 202 from Chinantla, Mexico) is doubtless in other herbaria and may well be in some of them represented in sufficiently mature condition to permit more precise identification. Information on this subject would be welcomed.

OXYPAPPUS SCABER Benth. Bot. Sulph. 118, t. 42 (1844). There seems to be no doubt that Dr. Gray was entirely right in reducing to the synonymy of this species *Pentachaeta gracilis* Benth. in Hook. Ic. xii. 1, t. 1101 (1872), though the latter is maintained as a valid species by Hooker f. & Jackson in the Index Kewensis.

Schkuhria schkuhrioides (Link & Otto), comb. nov. *Achyropappus schkuhrioides* Link & Otto, Ic. Pl. Rar. 59, t. 30 (1828). *Schkuhria senecioides* Nees, Del. Sem. Hort. Bonn. 1831; Hemsl. Biol. Cent.-Am. Bot. ii. 212 (1881).

Actinea Palmeri (Gray), comb. nov. *Actinella Palmeri* Gray, Proc. Am. Acad. xix. 31 (1883). *Plateilema Palmeri* (Gray) Cockerell, Bull. Torr. Bot. Club, xxxi. 462 (1904).

ACTINEA SCAPOSA (DC.) Ktze., var. **linearis** (Nutt.), comb. nov. *Actinella scaposa*, *β linearis* Nutt. Trans. Am. Phil. Soc. vii. 379 (1841). *Tetraneuris linearis* (Nutt.) Greene, Pittonia, iii. 267 (1898).

DYSSODIA Cav. The various efforts which have been made to separate *Hymenatherum* Cass. from *Dyssodia* Cav. have proved so unsatisfactory that it seems best to follow Hoffmann in Engl. & Prantl, Nat. Pflanzenf. iv. Ab. 5, 265 (1890), and regard the distinctions as being at best of subgeneric or sectional value. In accordance with this view, however, it is necessary to transfer several species, as follows:

Dyssodia anomala (Canby & Rose), comb. nov. *Hymenatherum anomalum* Canby & Rose, Contrib. U. S. Nat. Herb. i. 105, t. 7 (1891).

D. aurantia (L.), comb. nov. *Aster aurantius* L. Sp. Pl. ii. 877 (1753). *Aster americanus, foliis pinnatis*, etc., Rel. Houst. 7, t. 18 (1781). *Dysodia appendiculata* Lag. Nov. Gen. et Spec. 29 (1816). *Clomenocoma aurantia* (L.) Cass. Dict. Sci. Nat. ix. 416 (1817), lix. 66 (1829). *Clappia aurantiaca* Benth. in Hook. Ic. xii. t. 1104 (1872).

D. aurantiaca (Brandegee), comb. nov. *Hymenatherum aurantiacum* Brandegee, Zoe, v. 258 (1908).

D. pentachaeta (DC.), comb. nov. *Hymenatherum Berlandieri* DC. Prod. v. 642 (1836). *H. pentachaetum* DC. l. c.; Gray, Proc. Am. Acad. xix. 42 (1883), where the two species of DeCandolle are united under the name of the latter from the standpoint of priority of position. *Thymophylla pentachaeta* (DC.) Small, Fl. S. E. U. S. 1295, 1341 (1903). In making the transfer to *Dyssodia* the author would have preferred to reinstate the first name employed by DeCandolle, but this is forbidden by Art. 46 of the International Rules, which reads, " When two or more groups of the same nature are united, the name of the oldest is retained. If the names are of the same date, the author chooses, and his choice cannot be modified by subsequent authors." In the case in hand, the two names *Berlandieri* and *pentachaetum* were of the same date. The species seem first to have been united by Gray, who chose the second of the two names, and this, of course, is decisive according to the article just quoted.

D. concinna (Gray), comb. nov. *Hymenatherum concinnum* Gray, Syn. Fl. i. pt. 2, 446 (1884).

D. diffusa (Gray), comb. nov. *Hymenatherum diffusum* Gray, Pl. Wright. i. 116 (1852).

D. Greggii (Gray), comb. nov. *Thymophylla Greggii* Gray, Pl. Fendl. 92 (1849). *Thymophyllum Greggii* (Gray) Hemsl. Biol. Cent.-Am. Bot. ii. 221 (1881). *Hymenatherum Greggii* Gray, Proc. Am. Acad. xix. 42 (1883).

D. Hartwegi (Gray), comb. nov. *Hymenatherum Berlandieri* Benth. Pl. Hartw. 18 (1839), by error of determination, not DC. *H. Hartwegi* Gray, Pl. Wright. i. 117 (1852).

D. Neaei (DC.), comb. nov. *Hymenatherum ? Neaei* DC. Prod. v. 642 (1836). *H. boeberoides* Gray, Pl. Wright. i. 115 (1852). *H. Naei* Hemsl. Biol. Cent.-Am. Bot. ii. 220 (1881); Gray, Proc. Am. Acad. xix. 41 (1883).

D. neo-mexicana (Gray), comb. nov. *Adenophyllum Wrightii* Gray, Pl. Wright. ii. 92 (1853). *Hymenatherum neo-mexicanum* Gray, Proc. Am. Acad. xix. 40 (1883), not *H. Wrightii* Gray, Pl. Fendl. 89 (1849).

D. PAPPOSA (Vent.) Hitchc. Trans. St. Louis Acad. Sci. v. 503 (4 February, 1891). This combination is referred by Durand & Jackson, Ind. Kew. Suppl. 1, p. 147 (1902), to O. Kuntze, Rev. Gen. i. 334 (September, 1891). There can, however, be no question as to the priority of Prof. Hitchcock's publication, which was reviewed in the Bulletin of the Torrey Botanical Club, xviii. 91 (issued 10 March, 1891).

D. pinnata (Cav.), comb. nov. *Aster pinnatus* Cav. Ic. iii. 6, t. 212 (1795). *Dysodia pubescens* Lag. Nov. Gen. et Spec. 29 (1816). *D. subintegerrima* Lag. l. c. *Boebera incana* Lindl. Bot. Reg. t. 1602 (1833). *Dysodia incana* (Lindl.) DC. Prod. v. 640 (1836). *Boebera subintegerrima* (Lag.) Spreng. Syst. iii. 545 (1826). *Clomenocoma*? *pinnata* DC. Prod. v. 641 (1836). *Dysodia integerrima* Hemsl. Biol. Cent.-Am. Bot. ii. 219 (1881), by error for *D. subintegerrima*.

D. polychaeta (Gray), comb. nov. *Hymenatherum polychaetum* Gray, Pl. Wright. i. 116 (1852). *Thymophylla polychaeta* (Gray) Small, Fl. S. E. U. S. 1295, 1341 (1903).

D. setifolia (Lag.), comb. nov. *Thymophylla setifolia* Lag. Nov. Gen. et Spec. 25 (1816). *Thymophyllum setifolium* Hemsl. Biol. Cent.-Am. Bot. ii. 221 (1881). *Hymenatherum setifolium* (Lag.) Gray, Proc. Am. Acad. xix. 42 (1883).

D. Thurberi (Gray), comb. nov. *Hymenatherum tenuifolium* var.? Gray, Pl. Wright. ii. 93 (1853). *H. Thurberi* Gray, Proc. Am. Acad. xix. 41 (1883).

D. tenuiloba (DC.), comb. nov. *Hymenatherum tenuilobum* DC. Prod. v. 642 (1836). *H. tenuifolium* Gray, Pl. Wright. i. 118 (1852), by error of determination, not Cass. *Thymophylla tenuiloba* (DC.) Small, Fl. S. E. U. S. 1295, 1341 (1903).

D. Treculii (Gray), comb. nov. *Hymenatherum* n. sp.? no. 13 Gray, Pl. Wright. i. 116 (1852). *Hymenatherum Treculii* Gray, Proc. Am. Acad. xix. 42 (1883). *Thymophylla Treculii* (Gray) Small, Fl. S. E. U. S. 1295, 1341 (1903).

D. Wrightii (Gray), comb. nov. *Hymenatherum Wrightii* Gray, Pl. Fendl. 89 (1849). *Thymophylla Wrightii* (Gray) Small, Fl. S. E. U. S. 1295, 1341 (1903).

POROPHYLLUM DECUMBENS DC. Prod. v. 650 (1836). *Kleinia suffruticosa* Lodd. Bot. Cab. xvi. t. 1561 (1829), not Willd. This is one of many plants, which have been described solely from cultivated specimens. The stock was thought to have originally come from Mexico, but though first brought into cultivation as early as the twenties, it has never been rediscovered in Mexico or Central America.

Furthermore the species seems to have passed out of cultivation long ago and is now obscure. The object of the present note is merely to call attention to the fact that, judged from character and Loddiges' colored plate, the species would seem to be exceedingly close to if not entirely identical with *P. linifolium* (L.) DC., var. *brevifolium* (Hook. & Arn.) Bak. Fl. Bras. vi. pt. 3, 283, t. 80, f. 2 (1884), a maritime plant, native of Uruguay.

POROPHYLLUM RUDERALE and P. ELLIPTICUM. Urban, Symb. Ant. i. 467 (1900), unites these species under the name *P. ellipticum* Cass. Dict. Sci. Nat. xliii. 56 (1826). This course may have been suggested by the fact that *P. ellipticum* Cass., a mere renaming of the original *Cacalia Porophyllum* L. Sp. Pl. ii. 834 (1753), in a certain sense perpetuates the earlier element in the combined species. However, the course is contrary to the International Rules of Botanical Nomenclature, which in Art. 46 are as follows: "Dans le cas de réunion de deux ou plusieurs groupes de même nature, le nom le plus ancien subsiste."[3] In this case the oldest available name (the Linnaean specific name being rejected on account of its identity with the generic name) is *ruderale*, which going back to *Kleinia ruderalis* Jacq. Enum. 28 (1760), much antedates *ellipticum* of Cassini.

The writer fully concurs with Prof. Urban that the two plants should be treated as mere varieties of the same species. The following naming will correspond to the requirements of the International Rules.

P. RUDERALE (Jacq.) Cass. Dict. Sci. Nat. xliii. 56 (1826), at least as to name-bringing synonym. *Kleinia ruderalis* Jacq. Enum. 28 (1760). *Cacalia ruderalis* (Jacq.) Sw. Prod. 110 (1788). *Porophyllum ellipticum*, var. β *ruderale* (Cass.) Urb. Symb. Ant. i. 468 (1900).

P. ruderale, var. **ellipticum** (Cass.) Gray in herb. *P. ellipticum* Cass. Dict. Sci. Nat. xliii. 56 (1826).

FAUJASIA FLEXUOSA (Lam.) Benth. & Hook. f. Gen. Pl. ii. 443 (1873) acc. to Hook. f. & Jacks. Ind. Kew. i. 948 (1893). Identical with this species appears to be *Cacalia cuspidata* Klatt, Ann. Sci. Nat.

[3] It may be noted here that the English translation is inaccurate and misleading. It runs "When two or more groups of the same nature are united, the name of the oldest is maintained." In this very case it may be seen that the name of the older species is *ellipticum* for that species (under another designation, it is true) dates back to 1753, indeed even into pre-Linnaean times, while on the other hand the oldest (available) specific name is *ruderale*, dating from 1760. Thus it is clear that the English translation by the use of the expression "the name of the oldest" instead of "the oldest name" is capable of quite another interpretation from the official French version, "le **nom le** plus ancien," which happily, as well as the German "der älteste Name," is unequivocal.

ser. 5, xviii. 374 (1873), the type of which, collected on the Isle of Bourbon by Richard, is now in the Gray Herbarium. Other specimens of *F. flexuosa* at hand show the species to have a fairly wide range of variation as to leaf-contour, in some cases reaching the short, subcordate, conspicuously cuspidate-caudate form of Klatt's type, in others passing to elongate lance-oblong shapes more or less cuneate at the base.

CELMISIA Cass. Dict. Sci. Nat. vii. 356 (1817). This genus of the *Senecioneae* was founded by Cassini upon a single South African species, which he called *C. rotundifolia* and which later proved to have been the plant previously named *Arnica tabularis* by Thunberg, Prod. Fl. Cap. 154 (1800). The genus *Celmisia*, thus having been originally based upon a single species, there can be no question as to its type. Furthermore, the name has not been mentioned in the lists of nomina conservanda or nomina rejicienda, so it must take its course under the rules of priority. Cassini subsequently, Dict. Sci. Nat. xxxvii. 259 (1825), included in his genus a plant collected by Gaudichaud in Australia, namely *C. longifolia* Cass., a plant belonging to the *Astereae*. When the *Compositae* were treated by DeCandolle he unfortunately took this latter, Australian plant as the type of the genus, and referred the original South African species to a newly named genus, *Alciope* DC. Prod. v. 210 (1836). This was, of course, contrary to the clause of Article 45 of the International Rules, which reads: "If the genus contains a section or some other division which, judging by its name or its species, is the type or the origin of the group, the name is reserved for that part of it." DeCandolle's treatment has been generally accepted and perpetuated until the present day. It is true, Dr. Otto Kuntze noted the inconsistency and restored *Celmisia* to its original application, but he referred the Australian and New Zealand element of the complex to the genus *Aster*, a reduction not likely to be generally followed upon taxonomic grounds. The current International Rules appear to call for the following revision of the nomenclature in the genera concerned.

Celmisia tabularis (Thunb.), comb. nov. *Arnica tabularis* Thunb. Prod. Fl. Cap. 154 (1800). *Celmisia rotundifolia* Cass. Dict. Sci. Nat. vii. 357 (1817). *Ligularia tabularis* (Thunb.) Less. Syn. Comp. 390 (1832) by implication. *Alciope Tabularis* (Thunb.) DC. Prod. v. 210 (1836).

C. tomentosa (Burm. f.), comb. nov. *Conyza tomentosa* Burm. f. Prod. 26 (1768). *Arnica lanata* Thunb. Prod. Fl. Cap. 154 (1800). *Ligularia lanata* (Thunb.) Less. Syn. Comp. 390 (1832) by implication. *Alciope lanata* (Thunb.) DC. Prod. v. 210 (1836).

C. tomentosa, var. **grandis** (Thunb.), comb. nov. *Arnica grandis* Thunb. Prod. Fl. Cap. 154 (1800). *Alciope lanata β grandis* (Thunb.) DC. Prod. v. 210 (1836).

Elcismia, nom. nov. (Anogram.) *Celmisia* Cass. Dict. Sci. Nat. xxxvii. 259 (1825), and of most subsequent authors, not Cass. Dict. Sci. Nat. vii. 356 (1817). *Aster* § *Celmisiana* Ktze. in Post & Ktze. Lex. Gen. Phan. 49 (1904) — a name by its adjectival form inappropriate for use in generic rank.

E. Adamsii (Kirk), comb. nov. *Celmisia Adamsii* Kirk, Trans. N. Z. Inst. xxvii. 329 (1894).

E. Adamsii, var. **rugulosa** (Cheesem.), comb. nov. *Celmisia Adamsii*, var. *rugulosa* Cheesem. Man. N. Z. Fl. 313 (1906).

E. argentea (Kirk), comb. nov. *Celmisia sessiliflora*, var. *minor* Petrie, Trans. N. Z. Inst. xv. 359 (1882). *C. argentea* Kirk, Stud. Fl. N. Z. 292 (1899).

E. Armstrongii (Petrie), comb. nov. *Celmisia Armstrongii* Petrie, Trans. N. Z. Inst. xxvi. 269 (1894).

E. bellidioides (Hook. f.), comb. nov. *Celmisia bellidioides* Hook. f. Handb. N. Z. Fl. 135 (1864).

E. Brownii (F. R. Chapm.), comb. nov. *Celmisia Brownii* F. R. Chapm. Trans. N. Z. Inst. xxii. 444 (1890).

E. Campbellensis (F. R. Chapm.), comb. nov. *Celmisia Campbellensis* F. R. Chapm. Trans. N. Z. Inst. xxiii. 407 (1891). *C. Chapmani* Kirk, Gard. Chron. ix. 731, f. 146 (1891).

E. cordatifolia (J. Buchanan), comb. nov. *Celmisia cordatifolia* J. Buchanan, Trans. N. Z. Inst. xi. 427 (1879). *C. petiolata*, var. *cordatifolia* (J. Buchanan) Kirk, Stud. Fl. N. Z. 286 (1899).

E. coriacea (Forst. f.), comb. nov. *Aster coriaceus* Forst. f. Prod. 56 (1786). *Celmisia coriacea* (Forst. f.) Hook. f. Fl. Antarc. i. 36 (4 July, 1844), & Fl. N. Z. i. 121, t. 32 (1853); Raoul, Ann. Sci. Nat. ser. 3, ii. 119 (August, 1844).

E. Dallii (J. Buchanan), comb. nov. *Celmisia Dallii* J. Buchanan, Trans. N. Z. Inst. xiv. 355, t. 35 (1882).

E. densiflora (Hook. f.), comb. nov. *Celmisia densiflora* Hook. f. Handb. N. Z. Fl. i. 130 (1864).

E. discolor (Hook. f.), comb. nov. *Celmisia discolor* Hook. f. Fl. N. Z. i. 123 (1853).

E. dubia (Cheesem.), comb. nov. *Celmisia dubia* Cheesem. Man. N. Z. Fl. 308 (1906).

E. Gibbsii (Cheesem.), comb. nov. *Celmisia Gibbsii* Cheesem. Man. N. Z. Fl. 300 (1906).

E. glandulosa (Hook. f.) comb. nov. *Celmisia glandulosa* Hook. f. Fl. N. Z. i. 124 (1853).

E. Haastii (Hook. f.), comb. nov. *Celmisia Haastii* Hook. f. Handb. N. Z. Fl. 131 (1864).

E. Hectori (Hook. f.), comb. nov. *Celmisia Hectori* Hook. f. Handb. N. Z. Fl. 135 (1864).

E. hieraciifolia (Hook. f.), comb. nov. *Celmisia hieraciifolia* Hook. f. Fl. N. Z. i. 124, t. 34B (1853).

E. hieraciifolia, var. **oblonga** (Kirk), comb. nov. *Celmisia hieracifolia*, var. *oblonga* Kirk, Trans. N. Z. Inst. xxvii. 328 (1894).

E. holosericea (Forst. f.), comb. nov. *Aster holosericeus* Forst. f. Prod. 56 (1786). *Celmisia holosericea* (Forst. f.) Hook. f. Fl. Antarc. i. 36, (4 July, 1844); Raoul, Ann. Sci. Nat. ser. 3, ii. 119 (August, 1844).

E. incana (Hook. f.), comb. nov. *Celmisia incana* Hook. f. Fl. N. Z. i. 123 t. 34A (1853).

E. incana, var. **petiolata** (Kirk), comb. nov. *Celmisia incana*, var. *petiolata* Kirk, Stud. Fl. N. Z. 284 (1899).

E. laricifolia (Hook. f.), comb. nov. *Celmisia laricifolia* Hook. f. Fl. N. Z. ii. 331 (1855).

E. lateralis (J. Buchanan), comb. nov. *Celmisia lateralis* J. Buchanan, Trans. N. Z. Inst. iv. 226, t. 15 (1872).

E. lateralis, var. **villosa** (Cheesem.), comb. nov. *Celmisia lateralis*, var. *villosa* Cheesem. Man. N. Z. Fl. 302 (1906).

E. Lindsayi (Hook. f.), comb. nov. *Celmisia Lindsayi* Hook. f. Handb. N. Z. Fl. 132 (1864).

E. linearis (Armstr.), comb. nov. *Celmisia linearis* Armstr. Trans. N. Z. Inst. xiii. 337 (1881).

E. longifolia (Cass.), comb. nov. *Celmisia longifolia* Cass. Dict. Sci. Nat. xxxvii. 259 (1825).

E. longifolia, var. **alpina** (Kirk), comb. nov. *Celmisia longifolia*, var. *alpina* Kirk, Stud. Fl. N. Z. 289 (1899).

E. longifolia, var. **gracilenta** (Hook. f.), comb. nov. *Celmisia gracilenta* Hook. f. Fl. Antarc. i. 35 (1844). *C. longifolia*, f. *gracilenta* (Hook. f.) Kirk, Stud. Fl. N. Z. 289 (1899). *C. longifolia*, var. *gracilenta* (Hook. f.) Cheesem. Man. N. Z. Fl. 314 (1906).

E. longifolia, var. **major** (Kirk), comb. nov. *Celmisia gracilenta*, var. *β*. Hook. f. Fl. N. Z. i. 123 (1853). *C. longifolia*, ff. *major* & *asteliaefolia* Kirk, Stud. Fl. N. Z. 289 (1899).

E. longifolia, var. **graminifolia** (Hook. f.), comb. nov. *Celmisia graminifolia* Hook. f. Fl. Antarc. i. 35 (1844). *C. longifolia*,

f. *graminifolia* (Hook. f.) Kirk, Stud. Fl. N. Z. 289 (1899). *C. longifolia*, var. *graminifolia* (Hook. f.) Cheesem. Man. Fl. N. Z. 314 (1906).

E. Lyallii (Hook. f.), comb. nov. *Celmisia Lyallii* Hook. f. Handb. N. Z. Fl. 133 (1864).

E. Lyallii, var. **pseudo-Lyallii** (Cheesem.), comb. nov. *Celmisia Lyallii*, var. *pseudo-Lyallii* Cheesem. Man. N. Z. Fl. 312 (1906).

E. Mackaui (Raoul), comb. nov. *Celmisia Mackaui* Raoul, Choix Pl. Nouv. Zel. 19, t. 14 (1846).

E. Macmahoni (Kirk), comb. nov. *Celmisia Macmahoni* Kirk, Trans. N. Z. Inst. xxvii. 327 (1894).

E. Monroi (Hook. f.), comb. nov. *Celmisia Monroi* Hook. f. Handb. N. Z. Fl. 133 (1864).

E. parva (Kirk), comb. nov. *Celmisia parva* Kirk, Trans. N. Z. Inst. xxvii. 328 (1894).

E. petiolata (Hook. f.), comb. nov. *Celmisia petiolata* Hook. f. Handb. N. Z. Fl. 134 (1864).

E. petiolata, var. **membranacea** (Kirk), comb. nov. *Celmisia petiolata*, var. *membranacea* Kirk, Stud. Fl. N. Z. 286 (1899).

E. petiolata, var. **rigida** (Kirk), comb. nov. *Celmisia petiolata*, var. *rigida* Kirk, Stud. Fl. N. Z. 286 (1899).

E. Petriei (Cheesem.), comb. nov. *Celmisia Petriei* Cheesem. Man. N. Z. Fl. 311 (1906).

E. prorepens (Petrie), comb. nov. *Celmisia prorepens* Petrie, Trans. N. Z. Inst. xix. 326 (1887).

E. ramulosa (Hook. f.), comb. nov. *Celmisia ramulosa* Hook. f. Handb. N. Z. Fl. 733 (1864).

E. rupestris (Cheesem.), comb. nov. *Celmisia rupestris* Cheesem. Trans. N. Z. Inst. xvi. 409 (1884).

E. Rutlandii (Kirk), comb. nov. *Celmisia Rutlandii* Kirk, Trans. N. Z. Inst. xxvii. 329 (1894).

E. sessiliflora (Hook. f.), comb. nov. *Celmisia sessiliflora* Hook. f. Handb. N. Z. Fl. 135 (1864).

E. Sinclairii (Hook. f.), comb. nov. *Celmisia Sinclairii* Hook. f. Handb. N. Z. Fl. 132 (1864)..

E. spectabilis (Hook. f.), comb. nov. *Celmisia spectabilis* Hook. f. Fl. N. Z. i. 122, t. 33 (1853).

E. Traversii (Hook. f.), comb. nov. *Celmisia Traversii* Hook. f. Handb. N. Z. Fl. 134 (1864).

E. verbascifolia (Hook. f.), comb. nov. *Celmisia verbascifolia* Hook. f. Fl. N. Z. i. 121 (1853).

E. vernicosa (Hook. f.), comb. nov. *Celmisia vernicosa* Hook. f. Fl. Antarc. i. 34, tt. 26, 27 (1844).

E. viscosa (Hook. f.), comb. nov. *Celmisia viscosa* Hook. f. Handb. N. Z. Fl. 133 (1864).

E. Walkeri (Kirk), comb. nov. *Celmisia Walkeri* Kirk, Trans. N. Z. Inst. ix. 549 (1877).

Luina stricta (Greene), comb. nov. *Prenanthes stricta* Greene, Pittonia, ii. 21 (1889). *Luina Piperi* Robinson, Bot. Gaz. xvi. 43, t. 6 (1891). *Psacalium strictum* Greene, Pittonia, ii. 228 (1892). *Rainiera stricta* Greene, Pittonia, iii. 291 (1898). Some years ago the writer submitted material of this species to Dr. O. Hoffmann, author of the revision of the *Compositae* in Engler & Prantl's Natürliche Pflanzenfamilien. Replying to a request for his opinion as to the generic affinities of the plant, he wrote, under date of 20 September, 1897, "Nach Untersuchung des mir übersandten Materials halte ich Ihre Ansicht, dass die fragliche Pflanze in die Gattung Luina gehört für richtig, vorausgesetzt dass man *Luina* von *Cacalia* trennt. **** Doch würde ich für eine Vereinigung von *Luina* und *Cacalia* nicht stimmen." Having from my first investigation of the plant in question felt that it was a *Luina*, and having been confirmed in this view by the high authority of Dr. Hoffmann, I here associate with the generic name the earlier specific designation, according to the provisions of the International Rules.

Serratula deltoides (Ait.), comb. nov. *Onopordon deltoides* Ait. Hort. Kew. iii. 146 (1789). *Carduus atriplicifolius* Trev. Hort. Vratisl. 1820. *Silybum atriplicifolium* (Trev.) Fisch. Ind. Sem. Hort. Petrop. 1824. *Rhaponticum atriplicifolium* (Trev.) DC. Prod. vi. 663 (1837).

Onoseris onoseroides (HBK.), comb. nov. *Isotypus onoseroides* HBK. Nov. Gen. et Spec. iv. 12, t. 307 (1820). *Onoseris Isotypus* Benth. & Hook. f. Gen. Pl. ii. 487 (1873).

Chaetanthera cochlearifolia (Gray), comb. nov. *Oriastrum cochlearifolium* Gray, Proc. Am. Acad. v. 144 (1861).

Chaetanthera dioica (Remy), comb. nov. *Egania dioica* Remy in Gay, Fl. Chil. iii. 327, t. 36, f. 1 (1847); Wedd. Chlor. And. i. 32 (1855). *Oriastrum dioicum* (Remy) Reiche, Fl. Chil. iv. 357 (1904).

Chaetanthera Philippii, nom. nov. *Chondrochilus involucratus* Phil. Fl. Atac. 27, t. 3B (1860), not *Chaetanthera involucrata* Phil. Anal. Univ. Chil. xlvii. 6 (1894).

Chaetanthera splendens (Remy), comb. nov. *Elachia splendens* Remy in Gay, Fl. Chil. iii. 315 (1847). *Tylloma splendens* (Remy), Wedd. Chlor. And. i. 27, t. 8A (1855).

Trichocline reptans (Wedd.), comb. nov. *Bichenia reptans* Wedd. Chlor. And. 25, t. 8B (1855).

Gerbera gossypina (Royle), comb. nov. *Chaptalia gossypina* Royle, Ill. 18, 247, 251 (mere mentions, without characterization) & t. 57, f. 2, with floral details ("analyses") rendering the plate valid publication according to Article 37 of the International Rules. *Onoseris lanuginosa* Wall. Cat. no. 2929 (1828), nomen nudum. *Oreoseris lanuginosa* (Wall.) DC. Prod. vii. 17 ("1838"), citing Royle both by page and plate number; Deless. Ic. iv. 34 (citing both Royle and DC.), t. 76 ("1839"). It is impossible to see how the name *lanuginosa* can stand under the International Rules. Wallich's original publication of the name in 1828 is accompanied by no description. The publications of DeCandolle and Delessert must have been prepared at the same time and in collaboration, since they each cite the other by reference to page or plate, but it is significant that they both cite Royle's publication, a seemingly conclusive evidence that it must have been already in print. A manuscript note in the copy of the fourth volume of Delessert's Icones in the library of the Gray Herbarium states that it was received in December, 1840.

Gerbera maxima (D. Don), comb. nov. *Chaptalia maxima* D. Don, Prod. Fl. Nepal. 166 (1825). *Perdicium semiflosculare?* Ham. ex D. Don, l. c., not L. *Tussilago macrophylla* Wall. Cat. no. 2989 (1828). *Berniera nepalensis* DC. Prod. vii. 18 ("1838"). *Gerbera macrophylla* (Wall.) Benth. in Benth. & Hook. f. Gen. Pl. ii. 497 (1873), according to Hook. f. Fl. Brit. Ind. iii. 391 (1882). *Gerbera nepalensis* (DC.) Sch. Bip. Flora, xxvii. 780 (1844).

LEUCHERIA INTEGRIFOLIA (Phil.) Reiche, Fl. Chil. iv. 420 (1905), as *Leuceria*. This binomial was published by its author in a foot-note with the statement that he did not regard it as valid. Why authors should wish to publish names which they do not believe to be valid is a psychological mystery, which need not be discussed here. The point of interest in the present case lies in the fact that the discredited binomial would appear after all to be the legitimate designation of the plant in question. Reiche founded his new combination upon *Chabraea integrifolia* Phil. Anal. Univ. Santiago, xli. 744 (1872), but he states that *Leuceria integrifolia* (Phil.) [Reiche] cannot be accepted because of the existence of an earlier *Leuceria integrifolia* Phil. However, this earlier homonym does not appear to have been published and it seems probable that Reiche had in mind *Chabraea integrifolia* Phil. Linnaea, xxviii. 716 (1856), which on a later page of his work (430) Reiche includes in the synonymy of *Leuceria lithospermifolia*

(DC.) Reiche. It is obvious that the existence of the binomial *Chabraea integrifolia* Phil. (1856), especially if invalid, does not prevent the validity of a *Leucheria integrifolia* founded upon Philippi's quite different *Chabraea integrifolia* of 1872. In the synonymy of this species may be placed *Leuceria Hahnii* Franch. Miss. Sci. Cap. Horn, v. 349, t. 3 (1889). *L. fuegina* Phil. Anal. Univ. Santiago, lxxxvii. 98 (1894). It is not improbable that this may also have been the *Chabraea suaveolens, β integrifolia* Sch. Bip. Flora, xxxviii. 121 (1855), nomen nudum.

Leucheria suaveolens (Urv.), comb. nov. *Perdicium suaveolens* Urv. Fl. des Iles Malouines, 43 (1825); Mém. Soc. Linn. Paris, iv. 611 (1826). *Lasiorhiza ceterachifolia* & *L. viscosa* Cass. Dict. Sci. Nat. xliii. 80, 81 (1826). *Leuchaeria gossypina* Hook. & Arn. Comp. Bot. Mag. ii. 43 (1836). *Chabraea suaveolens* (Urv.) DC. Prod. vii. 59 (1838).

Perezia virens (D. Don) Hook. & Arn. Comp. Bot. Mag. i. 34 (1835). This species is referred by Reiche, Fl. Chil. iv. 445 (1905) to *P. Poeppigii* Less. Syn. Comp. 411 (1832). It is clear that the validity of *P. virens* must depend upon the date of its name-bringing synonym *Clarionea virens* D. Don, Trans. Linn. Soc. xvi. 208. It is true that the volume in which it was published bears the date 1833, but it is stated that Don's paper was read 1829 and there is every reason to suppose that the different papers of which the volume is composed were issued as printed and at quite different dates. Fortunately there is conclusive proof that Don's paper had reached print and issue before Lessing's publication, for Lessing cites Don's paper on pages 407, 408, 412, and elsewhere in his Synopsis, which should settle the matter of priority and lead to the re-instating of *P. virens* (D. Don) Hook. & Arn.

Trixis calcicola, spec. nov., fruticosa; ramis lignescentibus medullosis a cortice flavido-brunneo tectis foliosis costato-angulatis juventate latiuscule alatis; foliis alternis oblongis attenuato-acuminatis mucronato-denticulatis 1–1.2 dm. longis 2.3–3 cm. latis utrinque viridibus supra rugulosis puberulis subtus venosissimis tenuiter pubescentibus dense glanduloso-atomiferis basi angustatis et in alas latiusculas denticulatas decurrentibus; alis internodia aequantibus vel superantibus usque ad 5 mm. latis deorsum cuneatim angustatis; corymbis ovoideis subthyrsiformibus densis ca. 1 dm. diametro et minus altis; bracteolis involucri exterioris 5 elliptico-oblanceolatis 1.7 cm. longis 5 mm. latis tenuibus vix acutis basi angustatis extus glanduloso-puberulis; squamis involucri interioris 8 oblongo-linearibus

1.2 cm. longis ca. 2 mm. latis obtusiusculis; achaeniis 7.3 mm. longis subfusiformi-columnaribus griseis glanduloso-hispidulis; pappi setis laete albis 1.2 cm. longis tenuissimis levissime scabratis numerosis.— Limestone ledges, Iguala Cañon, near Iguala, Guerrero, Mexico, altitude 760 m., 28 December, 1906, *C. G. Pringle*, no. 13, 921 (type, in Gray Herb.). The broadly winged stems would seem to place this species near *T. pterocaulis* Robinson & Greenman and *T. alata* Don. The former, however, has the bractlets of the outer involucre shorter than the scales of the inner involucre, leaves subentire, etc., while in *T. alata* Don the bractlets of the outer involucre are ovate-lanceolate and acuminate. The long obscure *T. michuacana* LaLav. & Lex., which from the original description would appear to have some points in common and might well be found in the same region, is said to have a simple herbaceous stem and a thyrsiform inflorescence nearly a foot long.

Launaea picridioides (Webb.), l. c., comb. nov. *Rhabdotheca picridioides* Webb. in Hook. Nig. Fl. 146 (1849).